SECURITY

MONACOR®

The right technology to be on the safe side

CATALOGUE **105**

2009

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The right technology to be on the safe side

MONACOR®

DMR-416

Order No. 18.1120

16-channel digital multiplex recorder

DMR-408

Order No. 18.1110

8-channel digital multiplex recorder

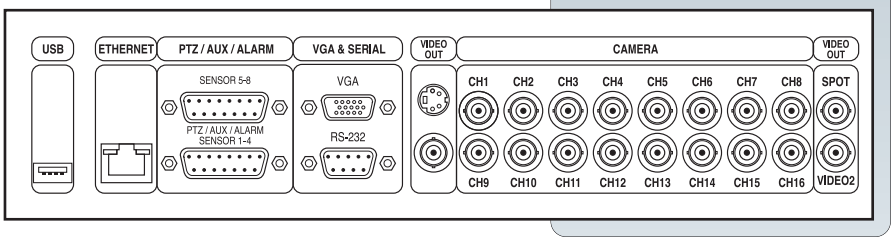
DMR-404

Order No. 18.1100

4-channel digital multiplex recorder

General specifications:

- Integrated CD-RW drive and network connection
- MPEG-4 recording technique
- Extensive software package for the remote control via network
- Multiplex (live picture, recording, reproduction and network transmission possible at the same time)
- VGA output for standard PC monitor
- Video motion detector: 12x12 sensor surfaces for each camera with adjustable sensitivity
- Video loss recognition and power loss recognition
- Recording speed: 1-100 pictures/sec., depending on the resolution
- 4 recording qualities
- Recording time depends on recording speed, recording quality and hard disk capacity
- Manual recording, alarm-controlled, time-controlled or motion triggered recording
- Picture export via USB 1.1 interface
- Quick search by time list, event list or alarm list
- Password protection
- Convenient operation due to OSD and jog shuttle
- Brightness, colour, contrast and sharpness can be adjusted for each channel
- RS-232 interface and RS-485 interface
- PTZ cameras can be controlled (different protocols)
- Alarm inputs and alarm output
- FTP upload and sending e-mails possible in case of alarm
- Supplied with remote control
- OSD: English/German/French/Spanish, instruction manual: English



Model	DMR-416	DMR-408	DMR-404
Video inputs	16 x BNC, terminating resistor, switchable	8 x BNC, can be fed through	4 x BNC, can be fed through
Video outputs	2 x BNC, main monitor 1 x BNC, call monitor 1 x S-video 1 x VGA	2 x BNC, main monitor 1 x BNC, call monitor 1 x S-video 1 x VGA	1 x BNC, main monitor 1 x S-video 1 x VGA
Audio inputs	-	-	-
Audio outputs	-	-	-
Resolution	720x288 pixels or 360x288 pixels	720x288 pixels or 360x288 pixels	720x288 pixels or 360x288 pixels
Video compression	MPEG-4	MPEG-4	MPEG-4
Recording	max. 120 pictures/sec.	max. 100 pictures/sec.	max. 100 pictures/sec.
Menu adjustments	on-screen menu (OSD)	on-screen menu (OSD)	on-screen menu (OSD)
Recording mode	manual, alarm, timer, motion detector	manual, alarm, timer, motion detector	manual, alarm, timer, motion detector
Search mode	date and time, event, alarm	date and time, event, alarm	date and time, event, alarm
Lettering	date and time, camera designation	date and time, camera designation	date and time, camera designation
Security	password protection	password protection	password protection
Video loss detection	included	included	included
Alarm inputs	4 x NC or NO (selectable)	4 x NC or NO (selectable)	4 x NC or NO (selectable)
Alarm outputs	1 x NO/NC	1 x NO/NC	1 x NO/NC
Signal device	integrated	integrated	integrated
Interfaces	RS-232, RS-485, LAN, USB	RS-232, RS-485, LAN, USB	RS-232, RS-485, LAN, USB
Hard disks	optionally, max. 2x	optionally, max. 2x	optionally, max. 1x
Admiss. ambient temp.	5-40 °C	5-40 °C	5-40 °C
Dimensions	433x88x385mm	433x88x385mm	433x88x385mm
Power supply	100-240V~/50-60Hz/70VA	100-240V~/50-60Hz/70VA	100-240V~/50-60Hz/70VA
Weight	5.5kg	5.5kg	5.5kg

DMR-524

Order No. 18.8190

DIGITAL COLOUR

4-channel digital multiplex recorder, with an integrated 320GB hard disk.

DMR-520

Order No. 18.1470

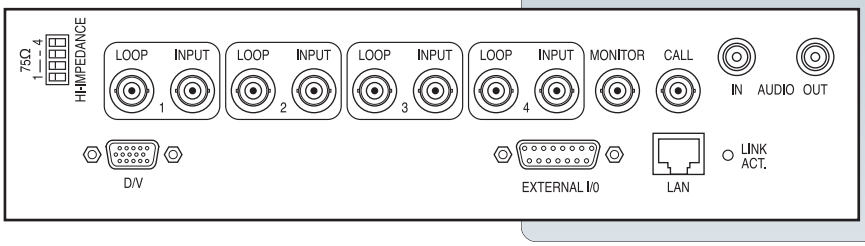
DIGITAL COLOUR

4-channel digital multiplex recorder, without hard disk (available at option, please pay attention to max. HDD temperature of 55 °C!)

Almost noiseless due to fanless design!

General specifications:

- With network connection
- Almost noiseless operation due to fanless cooling concept
- MPEG-4 recording technique
- Extensive software package for the remote control via network
- Triplex (live picture, recording and reproduction possible at the same time)
- Video motion detector: 16x12 sensor surfaces for each camera with adjustable sensitivity
- Video loss recognition and power loss recognition
- Recording speed: 1-100 pictures/sec., depending on the resolution
- 4 recording qualities
- Recording time depends on recording speed, recording quality and hard disk capacity
- Audio recording
- Manual recording, alarm-controlled, time-controlled or motion triggered recording
- Quick search by time list, event list or alarm list
- Password protection
- Brightness, colour, contrast and sharpness can be adjusted for each channel
- RS-232 interface and RS-485 interface
- PTZ cameras can be controlled (PELCO D protocol)
- 4 alarm inputs, 1 alarm output, status outputs can be configured
- FTP upload and sending e-mails possible in case of alarm
- OSD/instruction manuals: English/German/French/Italian/Spanish/ Portuguese



Model	DMR-524	DMR-520
Video inputs	4 x BNC, can be fed through	4 x BNC, can be fed through
Video outputs	1 x BNC, main monitor	1 x BNC, main monitor
	1 x BNC, call monitor	1 x BNC, call monitor
Audio inputs	1 x RCA	1 x RCA
Audio outputs	1 x RCA	1 x RCA
Resolution	720x576 pixels (25 fps)	720x576 pixels (25 fps)
	352x288 pixels (100 fps)	352x288 pixels (100 fps)
Video compression	MPEG-4	MPEG-4
Recording	max. 100 pictures/sec.	max. 100 pictures/sec.
Menu adjustments	on-screen menu (OSD)	on-screen menu (OSD)
Recording mode	manual, alarm, timer, motion detector	manual, alarm, timer, motion detector
Search mode	date and time, event, alarm	date and time, event, alarm
Lettering	date and time, camera designation	date and time, camera designation
Security	password protection	password protection
Video loss detection	included	included
Alarm inputs	4 x NC or NO	4 x NC or NO
	(selectable)	(selectable)
Alarm outputs	1 x NO/NC	1 x NO/NC
Signal device	integrated	integrated
Interfaces	RS-232, RS-485, LAN	RS-232, RS-485, LAN
Hard disks	1 x HDD	max. 1x HDD
Admiss. ambient temp.	10-40 °C	10-40 °C
Dimensions	345x72x245mm	345x72x245mm
Power supply	100-240V~ via PSU	100-240V~ via PSU
Weight	2.4kg	2.4kg

DMR-140

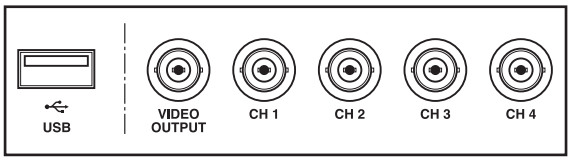
Order No. 18.1880

DIGITAL COLOUR NEW.

4-channel digital recorder

- M-JPEG recording technique
- USB 2.0 interface for picture evaluation at the PC
- Video motion detector: 12x12 sensor surfaces for each camera with adjustable sensitivity
- Recording speed: 1-25 pictures/sec., depending on the resolution
- 3 recording qualities
- Recording time depends on recording speed, recording quality and hard disk capacity
- Manual recording, time-controlled or motion triggered recording
- Quick search by time list, date list or event list
- Password protection
- Brightness, colour, contrast and sharpness can be adjusted for each channel
- Supplied with remote control, changing frame for hard disks and USB connection cable
- Software package on supplied CD (for Windows* only)
- OSD: English/German, instruction manual: English/German

Supplied without hard disk.
Matching hard disk is available at option.



Model	DMR-140
Video inputs	4 x BNC
Video outputs	1 x BNC
Audio inputs	-
Audio outputs	-
Resolution	720x576 pixels (LIVE)
Video compression	M-JPEG
Recording	max. 25 pictures/sec.
Menu adjustments	on-screen menu (OSD)
Recording mode	manual, timer, motion detector
Search mode	date and time, event
Lettering	on-screen display of status
Security	password protection
Video loss detection	-
Alarm inputs	-
Alarm outputs	-
Signal device	-
Interfaces	USB 2.0
Hard disks	optionally
Admiss. ambient temp.	0-40 °C
Dimensions	250x40x240mm
Power supply	12V=/3A via PSU 100-240V~/50-60Hz/80VA
Weight	3.6kg

DMR-150SET NEW.

Order No. 18.2090

Video surveillance set, consisting of:
4-channel digital recorder DMR-140
- Including 250GB hard disk (SATA)
- M-JPEG recording technique
- USB 2.0 interface for picture evaluation at the PC
- Video motion detector: 12x12 sensor surfaces for each camera with adjustable sensitivity

2 colour cameras TVCCD-150SET
- Day/night function
- Fixed focus lens (3.6mm)
- 12 infrared LEDs with automatic activation (IR range: 10m max.)
- Automatic switching from colour operation to B/W operation, depending on the illumination
- Incl. sunshield, wall bracket and camera connection cable

For further specifications, please refer to the individual items.

TVCCD-150SET IP66 COLOUR D/N NEW.

Order No. 18.2100

Colour camera, with day/night function.
- Fixed focus lens (3.6mm)
- 12 infrared LEDs with automatic activation (IR range: 10m max.)
- Automatic switching from colour operation to B/W operation, depending on the illumination
- Automatic electronic shutter
- Features: BLC, AGC, day/night (each can be switched off)
- Incl. sunshield and wall bracket, 18m connection cable

Model	TVCCD-150SET
Image sensor	6.35mm (¼") CCD
Number of pixels	hor. 500 x vert. 582
Resolution	420 lines
Lens	3.6mm/1:2.0
Min. illumination	0.2 lux (colour), 0 lux (B/W) with IR illumination
Admiss. ambient temp.	-10 °C to +50 °C
Power supply	12V⎓/300mA
Dimensions	68x68x92mm
Weight	500g
Other features	IP66, AGC, BLC, suit. for IR

DVR-1640A

482mm 19" DIGITAL COLOUR

Order No. 18.0440

16-channel digital duplex recorder

DVR-920A

482mm 19" DIGITAL COLOUR

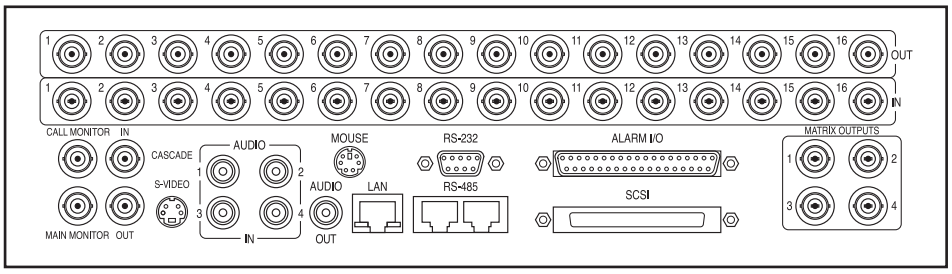
Order No. 18.0600

9-channel digital duplex recorder

General specifications:

- With 640GB on 2 x 320GB hard disks in a changing frame, MPEG-4 video compression and high recording speed, capable of network
- Suitable for versatile applications due to 6 independent video outputs max. (1 x multipicture, 5 x individual picture)
- Variable recording speed of up to 200 or 400 pictures/sec.
- Picture-in-picture function at live reproduction
- 2-fold digital zoom
- Real-time audio recording at any recording speed
- Video motion detector: 30x24 sensor surfaces for each camera with adjustable sensitivity
- Individual recording settings for each channel
- Picture export possible via USB 2.0 interface which is at the front of the unit
- Ethernet interface for remote monitoring and control via network
- Supplied with 482mm rack mounting brackets (19")
- Operation via mouse, front panel, supplied IR remote control or via control panels EKB-500 and DCJ-2

Built-in hard disk!



Model	DVR-1640A	DVR-920A
Video inputs	16 x BNC, can be fed through	9 x BNC, can be fed through
Video outputs	16 x BNC	9 x BNC
	1 x BNC, main monitor	1 x BNC, main monitor
	1 x S-video monitor, main monitor	1 x S-video monitor, main monitor
	1 x BNC, call monitor	1 x BNC, call monitor
	4 x BNC, matrix monitor	4 x BNC, matrix monitor
Audio inputs	4 x RCA	4 x RCA
Audio outputs	1 x RCA	1 x RCA
Resolution	720x576 pixels (PAL)	720x576 pixels (PAL)
Video compression	MPEG-4	MPEG-4
Recording	1-400 pictures/sec.	1-200 pictures/sec.
Menu adjustments	on-screen menu (OSD)	on-screen menu (OSD)
Recording mode	timer controlled, alarm-controlled,	timer controlled, alarm-controlled,
	motion triggered	motion triggered
Search mode	date and time, event	date and time, event
Lettering	up to 12 characters possible	up to 12 characters possible
	for each camera	for each camera
Security	password protection, 3 levels	password protection, 3 levels
Video loss detection	included	included
Alarm inputs	16	9
Alarm outputs	4	4
Signal device	integrated	integrated
Interfaces	RS-232, 2 x RS-485, USB 2.0, RJ45 (LAN)	RS-232, 2 x RS-485, USB 2.0, RJ45 (LAN)
Hard disks	2 x 320GB	2 x 320GB
Admiss. ambient temp.	0-40 °C	0-40 °C
Dimensions	430x88x300mm	430x88x300mm
Power supply	100-240V~/50-60Hz/185VA	100-240V~/50-60Hz/185VA
Weight	6.3kg	6.3kg

DVR-1610A

Order No. 18.0810

482mm 19" DIGITAL COLOUR

16-channel digital duplex recorder

DVR-1610D

Order No. 18.0820

482mm 19" DIGITAL COLOUR

16-channel digital duplex recorder, with integrated DVD+RW drive.

DVR-910A

Order No. 18.0790

482mm 19" DIGITAL COLOUR

9-channel digital duplex recorder

DVR-910D

Order No. 18.0800

482mm 19" DIGITAL COLOUR

9-channel digital duplex recorder, with integrated DVD+RW drive.

DVR-410D

Order No. 18.1400

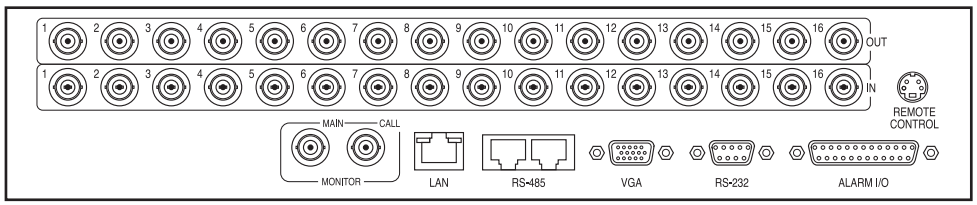
482mm 19" DIGITAL COLOUR

4-channel digital duplex recorder, with integrated DVD+RW drive.

General specifications:

- With 320GB hard disk and MPEG-4 video compression, capable of network
- Variable recording speed of up to 100 or 200 pictures/sec.
- Picture-in-picture function at live reproduction
- 2-fold digital zoom
- Video motion detection: 30x24 sensor surfaces for each camera with adjustable sensitivity
- Individual recording settings for each channel
- Event memory with up to 10,240 entries max.
- Picture export via USB 2.0 interface which is at the front of the unit
- Ethernet interface for remote monitoring and control via network
- Alarm inputs and alarm outputs
- VGA output
- Call monitor output with quad picture display
- Supplied with 482mm (19") rack mounting brackets
- Operation via front panel, supplied IR remote control or via the control panels EKB-500 and DCJ-2
- OSD: German/English and 12 additional languages, instruction manual: German/English

Built-in hard disk!



Model	DVR-1610A, DVR-1610D	DVR-910A, DVR-910D	DVR-410D
Video inputs	16 x BNC, can be fed through	9 x BNC, can be fed through	4 x BNC, can be fed through
Video outputs	16 x BNC	9 x BNC	1 x BNC, main monitor
	1 x BNC, main monitor	1 x BNC, main monitor	1 x BNC, call monitor
	1 x BNC, call monitor	1 x BNC, call monitor	1 x VGA
	1 x VGA, main monitor	1 x VGA, main monitor	
Audio inputs	-	-	-
Audio outputs	-	-	-
Resolution	720x576 pixels (PAL)	720x576 pixels (PAL)	720x576 pixels (PAL)
Video compression	MPEG-4	MPEG-4	MPEG-4
Recording	1-200 pictures/sec.	1-200 pictures/sec.	1-100 pictures/sec.
Menu adjustments	on-screen menu (OSD)	on-screen menu (OSD)	on-screen menu (OSD)
Recording mode	timer-controlled, alarm-controlled, motion triggered	timer-controlled, alarm-controlled, motion triggered	manual, alarm, timer, motion triggered
Search mode	date and time, event	date and time, event	date and time, event
Lettering	up to 12 characters possible for each camera	up to 12 characters possible for each camera	up to 12 characters possible for each camera input, OSD status display
Security	password protection, 3 levels	password protection, 3 levels	password protection for menu and recording function
Video loss detection	included	included	included
Alarm inputs	16	9	4 (NC/NO), programmable
Alarm outputs	1	1	1 x relay (NC/NO)
Signal device	integrated	integrated	integrated
Interfaces	RS-232, RS-485, USB 2.0, LAN (RJ45)	RS-232, RS-485, USB 2.0, LAN (RJ45)	1 x RS-232 (1 x 9-pole Sub-D), 1 x RS-485 (2 x RJ-45) 1 x USB 2.0
Hard disks	1 x 320GB (integrated)	1 x 320GB (integrated)	1 x 320GB
Admiss. ambient temp.	0-40 °C	0-40 °C	0-40 °C
Dimensions	430x83x390mm	430x83x390mm	430x83x385mm
Power supply	100-240V~/50-60Hz/90VA	100-240V~/50-60Hz/90VA	100-240V~ /50-60Hz/90VA
Weight	6kg	6kg	6.4kg

DVR-810H

Order No. 18.0430

DIGITAL COLOUR

8-channel digital duplex recorder, with 320GB hard disk.

DVR-410H

Order No. 18.0420

DIGITAL COLOUR

4-channel digital duplex recorder, with 320 GB hard disk.

Built-in hard disk!

General specifications:

- Video compression in MPEG-4 format
- Operation via buttons, jog shuttle or network
- Duplex function allows full screen display, quad display or picture-in-picture display with recording at the same time
- Variable recording speed of up to 100 pictures/sec., depending on the resolution
- 4 or 8 camera inputs, colour or B/W
- Pre-alarm recording
- Integrated video webserver
- OSD, quick search, password protection
- Picture export possible via USB 2.0 interface which is at the front of the unit
- Audio recording
- Video motion detector: 30x24 sensor surfaces for each camera with adjustable sensitivity
- HDD in a changing frame
- 4 or 8 alarm inputs, 2 alarm outputs
- Continuous recording, alarm-controlled or motion triggered recording
- Recording time for 4 or 8 cameras depends on recording modes and recording quality
- Operation via front panel, supplied IR remote control or via control panels EKB-500 and DCJ-2
- Supplied with PSU

Model	DVR-810H	DVR-410H
Video inputs	8 x BNC	4 x BNC, can be fed through
Video outputs	1 x BNC, main monitor	1 x BNC, main monitor
	1 x BNC, call monitor	1 x BNC, call monitor
		4 x out/loop
Audio inputs	2 x RCA	2 x RCA
Audio outputs	2 x RCA	2 x RCA
Resolution	720x576 pixels (PAL)	720x576 pixels (PAL)
Video compression	MPEG-4	MPEG-4
Recording	1-100 pictures/sec.	1-100 pictures/sec.
Menu adjustments	on-screen menu (OSD)	on-screen menu (OSD)
Recording mode	manual, alarm, timer,	manual, alarm, timer,
	motion triggered	motion triggered
Search mode	date and time, event	date and time, event
Lettering	up to 12 characters possible	up to 12 characters possible
	for each camera input,	for each camera input,
	OSD status display	OSD status display
Security	password protection for menu	password protection for menu
	and recording function	and recording function
Video loss detection	included	included
Alarm inputs	8 (NC/NO), programmable	4 (NC/NO), programmable
Alarm outputs	2 x relay (NC/NO)	2 x relay (NC/NO)
Signal device	integrated	integrated
Interfaces	1 x RS-232 (1 x 9-pole Sub-D), 1 x RS-485 (2 x RJ-45)	1 x RS-232 (1 x 9-pole Sub-D), 1 x RS-485 (2 x RJ-45)
	2 x USB 2.0	2 x USB 2.0
Hard disks	1 x 320GB	1 x 320GB
Admiss. ambient temp.	0-40 °C	0-40 °C
Dimensions	215x100x320mm	215x100x320mm
Power supply	100-240V~ via PSU (12-24V⎓/60VA)	100-240V~ via PSU (12-24V⎓/60VA)
Weight	5kg	5kg

DVR-100H

Order No. 19.9360

DIGITAL COLOUR

1-channel digital recorder, with 320GB hard disk and M-JPEG video compression.

- Hard disk hot-swapping capability
- Audio recording (only in the 3-hour mode)
- OSD, quick search, password protection
- Compact flash card slot for picture storage and for software update
- Alarm input and alarm output
- 6 recording qualities
- 11 recording modes
- 15 reproduction modes
- Recording time depends on recording modes and recording quality
- Operation via front panel, supplied IR remote control or via the control panels EKB-500 and DCJ-2
- Supplied with PSU

Built-in hard disk!

Model	DVR-100H
Video inputs	1 x BNC, can be fed through
Video outputs	1 x BNC
Audio inputs	2 x RCA
Audio outputs	2 x RCA
Resolution	720x576 pixels (PAL)
Video compression	M-JPEG
Recording	0.1-50 pictures/sec.
Menu adjustments	on-screen menu (OSD)
Recording mode	manual, alarm, external, timer
Search mode	date and time, event
	or hard disk segment
Lettering	OSD status display
Security	password protection for menu
	and recording function
Video loss detection	included
Alarm inputs	1 (NC/NO)
Alarm outputs	1 (NC/NO)
Signal device	integrated
Interfaces	1 x RS-232 (1 x 9-pole Sub-D), 1 x RS-485 (2 x RJ-45)
Hard disks	1 x 320GB
Admiss. ambient temp.	0-40 °C
Dimensions	215x100x320mm
Power supply	100-240V~ via PSU (5V, +12V, -12V/70VA)
Weight	4.7kg

POWERCON-4

Order No. 18.8140

Network management software, for the central administration of digital recorders of the DVR series.

- Administration of an unlimited number of digital recorders
- Live view and reproduction of recorded data
- Local storage and printout of video sequences and individual pictures
- Multi-window design with scalable video windows
- Multiview with up to 4 different digital recorders, can be defined as desired
- Mapview: visualisation of CCTV systems in areas or buildings with freely scalable maps/graphics (BMP format or JPG format)
- Remote configuration of digital recorders of the DVR series
- Reception and administration of network alarms
- Support of several monitors (dep. on PC)
- Advanced access rights with individual user rights for functions and access to the system
- Network monitor for visualisation of the network utilisation
- System checker: integrated background program with alarm function for permanently monitoring the network availability of the digital recorders
- Calling of external programmes

System requirements

PC Pentium 4 (1.6GHz or higher), AMD Athlon (1.8GHz or higher), VGA card with 32MB RAM, 256MB RAM, 30MB free hard disk memory for installation, min. 10MB free hard disk memory for data storage, USB 2.0 interface, Windows* XP, DirectX 9.0C, Microsoft mediaplayer version 8.x or higher

Digital Recording

Many years ago, analog timelapse recorders have dominated the market of video recorders. Although, these systems were of low cost when purchasing them, regular maintenance work, e.g. the replacement of the video head disk and other mechanical wear parts, were expensive.

Today, the emphasis is placed on digital recorders which store their information mainly on hard disks. This has been made possible by the extending capabilities of computer technologies. The application of these technologies allows to manufacture units with versatile features and power capabilities which were so far only known by using many different individual units. The result of this is that certain types of units have almost completely vanished from the market.

External multiplexers, for example, are hardly available on the market anymore, because they are already integrated in the recorders.

Today DVRs are available in various housing designs with versatile features.

Multichannel units
These types of units are supplied ready for operation, i.e. only the mere configuration must be carried out. These recorders are equipped with all the necessary connections for video signals and alarm signals. The special Linux operating system allows for a reliable operation which is also obtained by matching hardware components in such a way that an operation around the clock is possible without any problems. The latest DVRs operate without a fan and allow an application also in quiet office surroundings.

Advantages of ready-to-use units:
– ready for operation straightaway
– no assembly necessary
– compact design
– operational controls are functional
– effective power supply

The abbreviation of these systems is DVR and they are available in different sizes and performance classes. Units with 4, 9, or 16 camera inputs are commonly used.

One-channel recorders
The DVR-100H represents a certain special form. It was designed as a direct replacement for analog tape recorders. With this unit, existing systems can also be updated with new technology at a favourable price. In this case, the DVR-100H replaces the existing analog timelapse recorder. The operation and programming is very close to existing analog units. The one-channel DVRs usually do not feature motion detection as opposed to multichannel DVRs.

Insert cards
Insert cards for the PC are also popular. These cards allow Windows-based PCs to become very efficient DVRs. At these systems, the complete hardware installation and software installation must be carried out by the customer prior to setting the unit into operation. The min. system requirements on the PC hardware must at least be met in order to obtain the max. power capacity, but it is usually advantageous if they are above it. This type of DVR should not additionally be used as an ordinary office computer to ensure an operation on a windows operating system as secure and with as little interference as possible. A good knowledge of operating systems and hardware configuration is essential for the application of these card systems because many PC components must be interconnected.

Mini digital recorders
With these units the dimensions are tried to be kept as small as possible. These units are partly only the size of a small plate and the recording is often stored on a solid-state memory, e.g. SD or CF cards. These recorders are mainly used for a concealed surveillance.

Current DVRs combine a variety of functions in one housing which were previously only possible by using separate special units. To name all the function and characteristics in this case would be too extensive, therefore we only describe the most important ones.

Recording speed
Current DVRs record up to 400 pictures per second. The max. recording speed stated is the sum of speeds of the individual camera inputs.

The amount of pictures depends on the resolution. Thus, with such fast units, a real time recording of max. 25 pictures per second and per camera is possible.

Duplex method
The unit continues to record, whilst live pictures or previous recordings are viewed. Additionally, with many units, the data can be accessed via LAN at the same time.

Alarm recordings
They are possible without delay, as no videotape has to be threaded in. As a result, the alarm functions like motion detection and external contacts can be used more intensively and the recorded data quantity can thus be reduced.

Motion detection
The DVR analyses the video picture. If a change in contrast is noticed, an alarm is triggered. Various functions can be started with this alarm. For instance, an automatic recording can be started. Additional features are possible, like alarm output or sending message via e-mail, depending on the type of DVR.

LAN
This is the facility to access the DVR via network connection and is often integrated already. Pictures in one network can be displayed on different computers without extensive extra cabling. An access via the Internet is also possible by connecting it to a router.

Programmability
a DVR offers many features, which can be adjusted in a clearly arranged on-screen menu. The different functions like alarm, motion detection, or video loss work perfectly together. In case of external solutions, many additional cables have to be laid. This makes subsequent alterations very expensive and causes great effort.

Software tools which are additionally available for some DVRs, make the programming and administration considerably easier. At the same time, the software offers additional features like printing and storing on external computers.

Security
The units are protected against access and tampering with passwords.

In some cases, several levels can be created for different user groups with different access rights.

Continuous recording
If the end of the hard disk capacity is indicated, the recording can automatically be continued from the start again; the oldest recordings are then deleted in blocks. If longer periods of times are to be kept, the recording is stopped so that the hard disk can be exchanged.

Hard disks
Even though they are standard hard disks, only the types of hard disks are to be used which have been recommended and tested in order to establish a safe operation. Generally, a respective list can be found in the instruction manuals. The max. oper-ating capacity has to be considered, too. In principle, the PC cannot read the recording format of the hard disk. In order to read the data, the same type of unit is required each time. There is a special external reading frame with respective software available for some units.

Maintenance
Most of the DVRs which are made nowadays do not need any maintenance anymore. Wear and tear parts which wear down during recording as we know from the analog tape recording, do no longer exist. Nevertheless, it is recommended, depending on the location where the unit is installed, to check the ventilation slots and the functionality of the built-in fansregularly, so that dust doesn't make the cooling of the units more difficult.

Data export
It is possible to export digital picture sequences directly by using network connections or additional USB outputs. Depending on the type of unit, data can directly be transferred to a PC or a picture viewing programme is supplied with the unit to allow for that.

Depending on the type of unit, current DVRs nowadays combine features of several conventional video products which previously had to be selected as individual components:
- Colour and B/W recording
- Multiplexer functions
- Video motion detector for each camera
- Video loss detector
- Connection to LAN and ISDN (optional)
- Password protection
- Alarm section with inputs and outputs
- Feed-through outputs

DMR-416, see page S 2

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EPR-100

Order No. 19.0020

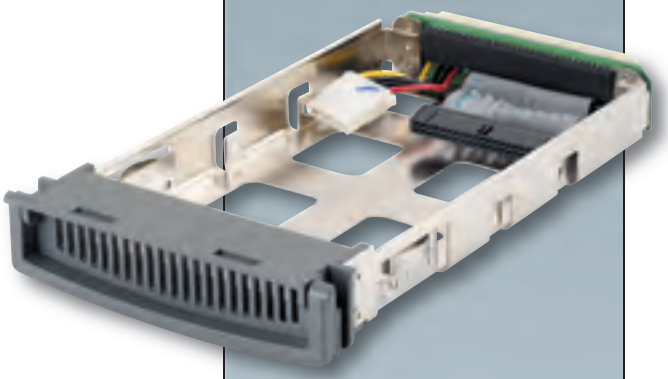
External USB reading frame, for reading out the hard disks of the digital recorders of the **DVR series.**

- Supplied with software for Windows* 2000/XP with DirectX9.0b
- Still image recording, video capture, archive functions
- USB 2.0 interface with USB connection type B
- Metal housing with built-in fan, on/off switch, LED for HDD and mains voltage, HDD lock (suppl. with 2 keys)
- Supplied with matching PSU 230V~/50Hz/30VA
- Dimensions: 155x47x277mm, weight: 1.35kg

DVR-1M

Order No. 18.0670

Changing frame for hard disks, for digital recorders DVR-100H, DVR-410H, DVR-810H, DVR-920A, and DVR-1640A (supplied without hard disk).



HDD-500GB

Order No. 18.2070

EIDE hard disk, 500GB, especially designed for the application in digital recorders with EIDE interface.

HDD-320GB NEW.

Order No. 18.1360

EIDE hard disk, 320GB, especially designed for the application in digital recorders with EIDE interface.

General specifications:

- Designed for continuous 24-hour operation, thus high operational reliability
- Reduced current consumption, low running noise and low heat generation
- 7,200 rpm, 8MB cache
- Interface: ATA133/EIDE

SATA-500GB NEW.

Order No. 18.8260

SATA hard disk, 500GB, especially designed for the application in digital recorders with SATA interface.

SATA-320GB NEW.

Order No. 18.8250

SATA hard disk, 320GB, especially designed for the application in digital recorders with SATA interface.

General specifications:

- Designed for continuous 24-hour operation, thus high operational reliability
- Reduced current consumption, low running noise and low heat generation
- 7,200 rpm, 8MB cache
- Interface: SATA/300 (SATA II)

DMR-123LCD

DIGITAL COLOUR

Order No. 18.1270

Portable 2-channel mini digital recorder, suitable for mobile applications.

- With TFT colour display, 6cm (2.36")
- Shock-proof and vibration-proof
- 2 video inputs, switchable
- Video compression in MPEG-4 format
- Audio recording
- Individual picture recording (snap-shot)
- Storage medium: secure digital card (SD card), max. 2GB, not supplied
- Power supply via integrated rech. battery (5V, Li-Ion)
- On-screen menu control (OSD)
- Infrared remote control
- Supplied accessories: charger, connection cable for motor vehicles, mom. push-button for snap-shot function, connection cables for video (BNC), audio (RCA) and power supply

Model	DMR-123LCD
Resolution	320x240 pixels (video)
	320x240 pixels (photo)
Video compression	MPEG-4
Recording	30 pictures/sec.
Menu adjustments	on-screen menu (OSD)
Admiss. ambient temp.	-10 °C to +55 °C
Dimensions	75x30x125mm
Power supply	5V⎓/300mA via
	rech. Li-Ion batt.
	or suppl. charger
	100-240V~/50-60Hz
Weight	330g

USB-20AV

COLOUR

Order No. 18.0470

USB video audio grabber, for digitising analog signal sources.

- Ideally suited for the connection of camcorders, cameras, and other video equipment to a notebook or PC with high-speed USB 2.0 interface
- Incl. extensive software package: driver software, recording software and grabber software, DVD solution software from Presto!: digital converter, VideoWorks6 in German, English, French, Spanish, Italian
- Numerous video postproduction facilities, also including various effects
- Snap shot function (JPG)
- Direct recording of a DVD, VCD or SVCD
- Supported formats: PAL, NTSC and SECAM
- Encodes videos in MPEG-1, MPEG-2 and MPEG-4
- Frame rate up to 25 fps (720x576 pixels, PAL), up to 30 fps (720x480 pixels, NTSC), MPEG-4 with 320x240 pixels
- Power supply via USB interface
- 1 x stereo RCA for audio (for Windows XP via USB), 1 x SVHS, and 1 x RCA for video

Min. system requirements

Pentium 4, >1 GHz, 128MB RAM, CD/DVD-RW, USB 2.0 interface, sound card, Windows* XP.

Compression Methods and Recording Time

Large amounts of data are created when analog video signals are converted into digital data. If they would be recorded in an uncompressed way, even a large hard disk would only last a few hours.

A sequence of 30 minutes with 25 pictures/sec. of a high quality would quickly have 40 or more Gbytes of raw data. In order to reduce this amount of data without greatly reducing the quality of the recording, high-performance compression methods have been developed over the last few years.

The differences and main advantages of the different methods are roughly described below. Further information on the individual methods can be found on the Internet.

JPG is a compression method for individual pictures (still images). The compression rate works out at a factor 10-20. The JPG format is very popular. A picture which is stored in this format can be recalled by almost any kind of computer system. It is also ideally suited for sending it as an e-mail attachment.

MJPG (Motion JPG) is a method based on JPG where individual pictures are compressed as a sequence. The advantage of this method is that each individual picture can be taken from the sequence as a still image.

MPEG-2. This method was developed for the compression of TV pictures. The new TV standards DVB-T, DVB-S, DVB-C, and also the video DVD are using this method. The compression rate is clearly higher than at the MJPG. The MPEG-2 is of an advantage where only smaller areas of a picture change, because only the changes from the previous picture are saved. A complete picture is only saved every 10-15 pictures for reference.

But this is exactly the limitation. From a sequence which has been compressed by MPEG-2, pictures may not be taken accurately. When the MPEG-2 files are exported, a special programme is required for the reproduction because the standard viewers do not recognise these files. This programme usually has to be paid for.

MPEG-4 is the further development of the MPEG-2. MPEG-4 resolves the picture more effectively and can thus compress a sequence quicker and maybe smaller. Special hardware is usually used for the MPEG-4 compression, because a higher efficiency of the electronic equipment is required.

Reducing the amount of data does not only save storage space on the hard disks, the reduction for a faster network transmission is more and more important. This is particularly important for narrow-band connections, e.g. Internet connections.

How does the MPEG-4 affect the recording time?
The MPEG-4 method has a crucial affect on the possible recording time. At a MJPG recording, the required capacity could be determined quite accurately, because each picture had the same size which only depended on the recording quality. This completely changes with MPEG-4.

The amount of data which has to be recorded depends on the amount of change in the picture contents from picture to picture. These changes may be caused by different kind of reasons.
The two following sequences are to illustrate this with a typical example.

A black car is seen moving up a driveway. **(see picture 1 below)**

Sequence 1 shows a recording by MJPG method. Each picture is compressed individually and stored. Thus, each individual picture can be taken from this sequence. A storage space for 6 full picture contents will be required.

Sequence 2 shows a recording by MPEG-4 method **(see picture 2 below)**. The first picture is stored completely as a reference picture. This reference picture will be called "1frame". After that, only the changes in the picture will be filtered and stored. Thus, only the relatively small section of the picture will be stored where the vehicle is moving in. Only after 10 such pictures, another reference picture (1frame) is stored completely. This is one of the reasons, why storage capacity is also used, even if no changes have occured in the picture.

Picture 1

Picture 2

Comparing the two sequences, one can now quite easily see how the amount of data is reduced. The more static, i.e. the more unchanged the picture is, the smaller the amount of data is which has to be recorded, or vice versa: the larger the changes, the smaller is the advantage of the storage space of MPEG-4.

Is is very hard to predict the recording time in a simple table.

A part of a table for the DVR-1640A is shown to illustrate this.

Let's assume, 10 cameras are connected to this recorder and each of them records 5 pictures/sec. This results in a recording speed of 50 pictures/sec.

Recording capacity in hours for the DVR-1640A
Recording in PAL mode at a hard disk capacity of 640GB
Resolution of the system: 720 x 576

Recording speed pictures/sec.)	Picture quality / Picture condition / Picture size in KB					
	LOW		STANDARD		HIGHEST	
	static	complex	static	complex	static	complex
	8.42KB	13.70KB	11.86KB	19.56KB	18.60KB	30.05 KB
100	212	128	148	90	96	58
96	218	134	154	96	102	64
64	332	204	236	140	148	90
50	**422**	**262**	**300**	**180**	**192**	**116**
32	660	404	468	282	300	186
16	1318	812	934	570	596	372

static: recorded picture sequences without great changes to the pictures by high-quality cameras of low noise
complex: frequent change of pictures/a lot of movement/little noise

The table shows different recording times which depend on the quality and condition of the picture.
At continuous recording, 96 hours of static pictures and 58 hours of complex pictures can be recorded.

What kind of conditions may additionally affect the recording time?
The application of motion detection and timers do not enhance the actual recording time, but the time available is distributed more useful. Thus, it is possible, e.g. when using a timer setting of 10 hours a day and activating the motion detection, the recording time can be distributed to 10 or more days.

The affect on the quality of the camera pictures is more crucial. At twilight or if a spider's web is moving in front of the camera, for example, a camera signal which is not of low-noise is recognised by the units as a sequence with full change of the picture contents. Especially due to the noise, the luminosity of almost every pixel changes. In such cases, the recording time may be reduced to a quarter or below.

Thus, it is always recommendable to use high-quality cameras with respective lenses and to ensure sufficient illumination.

Conclusion:
The recording times of sequences recorded by MPEG-4 method cannot be predicted for certain.

The times of the units stated in the tables are approximate values only. The storage requirement can be five times as much if the picture quality is poor and thus reducing the recording time considerably.

DVR-1640A, see page S 6

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GV-600/4
Order No. 19.8140 COLOUR

GV-600/8
Order No. 19.8690 COLOUR

GV-800/4
Order No. 19.8150 COLOUR

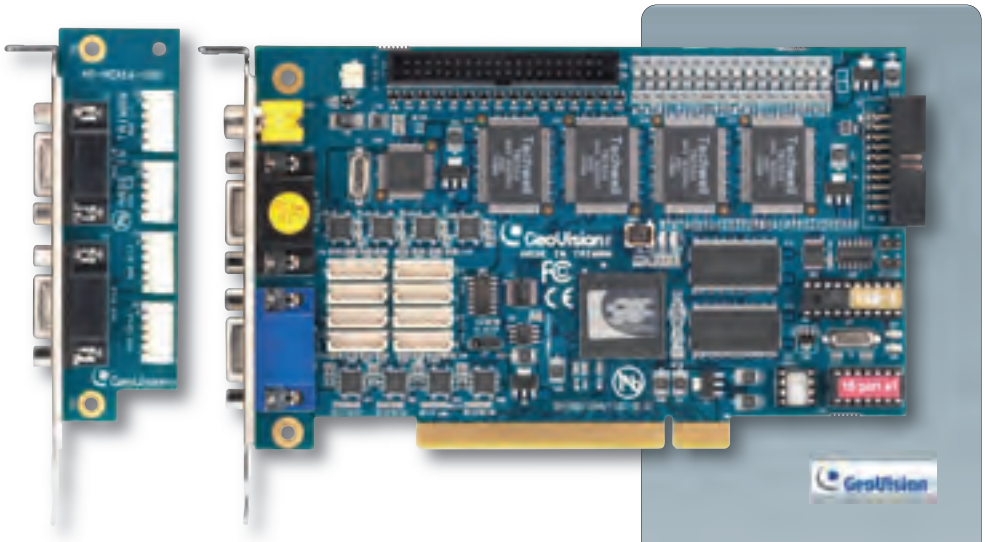
GV-800/8
Order No. 19.8700 COLOUR

GV-800/16
Order No. 19.8810 COLOUR

GV-1240/8
Order No. 18.0230 COLOUR

GV-1240/16
Order No. 18.0240 COLOUR

GV-1480/16
Order No. 18.0250 COLOUR



PC-based video surveillance systems, for 4-16 cameras connected to one PC with Windows* 2000, XP, Windows* Vista, for recording, transmitting, and displaying video, audio and event files in real time. The supplied software allows a central administration of several surveillance systems. With clearly arranged log-book administration of the incoming alarm messages. Due to an extensive administation of the access rights, a possible access can be controlled in detail. Versatile options for configuration, e.g. start of recording, recording speed, type of message, display modes, and search modes, etc. allow an individual adjustment to the respective requirement.

- Triplex mode
- Video motion detection with adjustable sensitivity for each camera
- Privacy masking function
- Face detection function
- Search for "missing" objects
- Pre-alarm recording
- Start of recording and recording quality can be adjusted for each camera individually
- Video compression: Wavelet, MPEG4, Geo MPEG4, Geo MPEG4 (ASP), Geo H264
- Control of PTZ cameras possible via input/output module GV-NET/IO, available at option
- Backup possible on all disk drives supported by the PC
- Photo format: BMP, JPEG, TIF
- Integrated webserver function
- Digital watermark
- Smart mode function for optimising surveillance at low utilisation of system
- Real-time display of the video and audio transmission for all cameras from GV-1240 on (real time function)
- Remote playback function
- Remote inquiry and remote surveillance via LAN and TCP/IP network
- Message in case of alarm by event recognition, e-mail with pictures, SMS or telephone
- Support of the dynamic IP address

In order to ensure an interference-free operation, this video surveillance system should be installed into a standalone PC.

Model	GV-600/4, GV-600/8	GV-800/4, GV-800/8, GV-800/16	GV-1240/8, GV-1240/16	GV-1480/16
Video inputs	4/8	4/8/16	8/16	16
Audio inputs	1	4	8	16
Recording rate	25 fps	100 fps	200 fps	400 fps
Display rate	25 fps	100 fps	400 fps	400 fps
Resolution	max. 720x576 pixels	max. 720x576 pixels	max. 720x576 pixels	max. 720x576 pixels
Hardware watchdog	yes	yes	yes	yes
TV output	no	no	yes	yes
GV-NET/IO compatible	yes	yes	yes	yes
Software	German/English	German/English	German/English	German/English
Min. system requirements				
Operating system	Windows 2000, XP, Vista, Server 2003	Windows 2000, XP, Vista, Server 2003	Windows 2000, XP, Vista, Server 2003	Windows 2000, XP, Vista, Server 2003
Direct X	version 9.0	version 9.0	version 9.0	version 9.0
CPU	Pentium 4, 2.8GHz	Pentium 4, 2.8GHz	Pentium 4, 2.8GHz	Pentium 4, 2.8GHz
RAM	256MB	256MB	512MB	512MB
Hard disk	80GB	80GB	120GB	250GB
VGA	NVIDIA GeForce compatible or ATI Radeon 9550 or higher	NVIDIA GeForce compatible or ATI Radeon 9550 or higher	NVIDIA GeForce compatible or ATI Radeon 9550 or higher	NVIDIA GeForce compatible or ATI Radeon 9550 or higher

GV-NET/IO

Order No. 19.0040

Alarm input/output module with RS-232/RS-485 converter, allows to connect external units to the PC video surveillance systems of the GV-... series. Various detectors like e.g. motion detectors, reed contacts, etc. and output devices like sirens, electr. door locks, etc. can be combined with each other via 4 inputs and 4 outputs. The GV-NET/IO card is directly inserted into a free slot of the PC. Furthermore, it is possible to control connected dome cameras directly from the PC via the RS-485 interface of the GV-NET/IO card.
Supplied with matching connection cables. The peripheral devices are connected via screw plug terminals.

GVENPOS-300

Order No. 18.1090

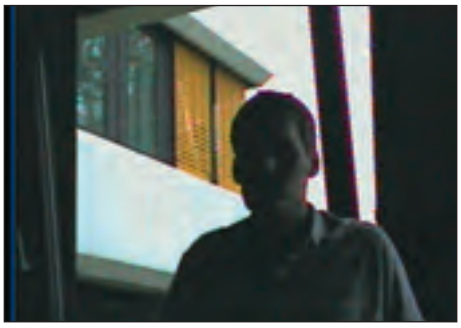
POS linking module, for fading-in and collecting data of all transactions via network (LAN) and Internet connection. Compatible with all PC video surveillance systems of the GV-... series.

- Operates as an interface between cash register and GV system
- Data transmission via TCP/IP interface
- Support of up to 16 POS systems
- Supports all the standard cash register protocols
- Power supply via supplied 5V PSU
- Dimensions: 161x34x123mm
- Min. system requirements: Geovision software V8.0.4.0 or higher

Wide Dynamic Range (WDR) Cameras

Situations with a great amount of backlight are one of the biggest challenges of video surveillance. This may be a camera inside a shop, for example, which is directed towards a glass entrance door. Now, if a person enters the shop, a standard camera will try to display the brighter background, because this provides the largest visual contents. In this case, the person in front of it appears too dark. A similar situation occurs when a motor vehicle drives towards the cameras with the headlights switched on. The headlights ensure that the camera is unable to recognise the number plate or any signs on the motor vehicle. Similar effects may also be caused by reflections on wet surfaces.

The backlight compensation which is integrated into many cameras is only capable of compensating slight deviations.



Standard camera

The camera systems with built-in **wide dynamic range (WDR) function** are a considerable improvement. In simple terms, this means that the picture is divided internally into very small surfaces, partly down to pixel level. The brightness of each of these surfaces is now matched automatically and independently of the adjoining surfaces. Thus, it is now possible in the above-mentioned example to clearly recognise both the person in the room and the background.

WDR camera

Application range of WDR cameras
Entrance doors in shop areas
Strong punctual glare, e.g. by lanterns
Driveways
Gateway surveillance in warehouses

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Is it Possible to Access the Digital Recorder via the Internet?

This is a commonly asked question. The answer to this question could basically be: yes.

Made possible by the DSL-based Internet connections which are available nowadays. In order to allow access, a few requirements have to be met beforehand which are described below. The access via a DSL connection is described only, because sole telephone connections, e.g. analog or ISDN are irrelevant nowadays and are thus not considered in this case. The following information does not only apply to DVRs, but also to all units with built-in webservers, e.g. video webserver, network cameras.

Note: Such access should only be set up if the DSL connection on the side DVR is combined with a flatrate. A rate calculated by time would cause very high costs, because the connection has to be set up for continuous operation.

One address for each unit

This principle applies to both an internal LAN and the Internet. Each unit which is connected to the network requires a unique IP address by which the unit can be contacted. This can easily be realised with an internal network. It might be a little harder with an Internet connection. The **illustration 1** shows this in a simplified way.

The DVR is connected to the network on the side Local where is has a fixed IP address. This is usually in the range: 192.168.001.xxx. In this case, the last digit of all connected unit is different.

Another PC is also connected to a router on the side Remote. From this PC, the pictures of the DVR are to be called up. The routers allow a connection to the Internet. For this purpose, the access data for an ISP (Internet Service Provider) are stored on these routers, e.g. a standard DSL connection. The routers receive their IP addresses from the provider.

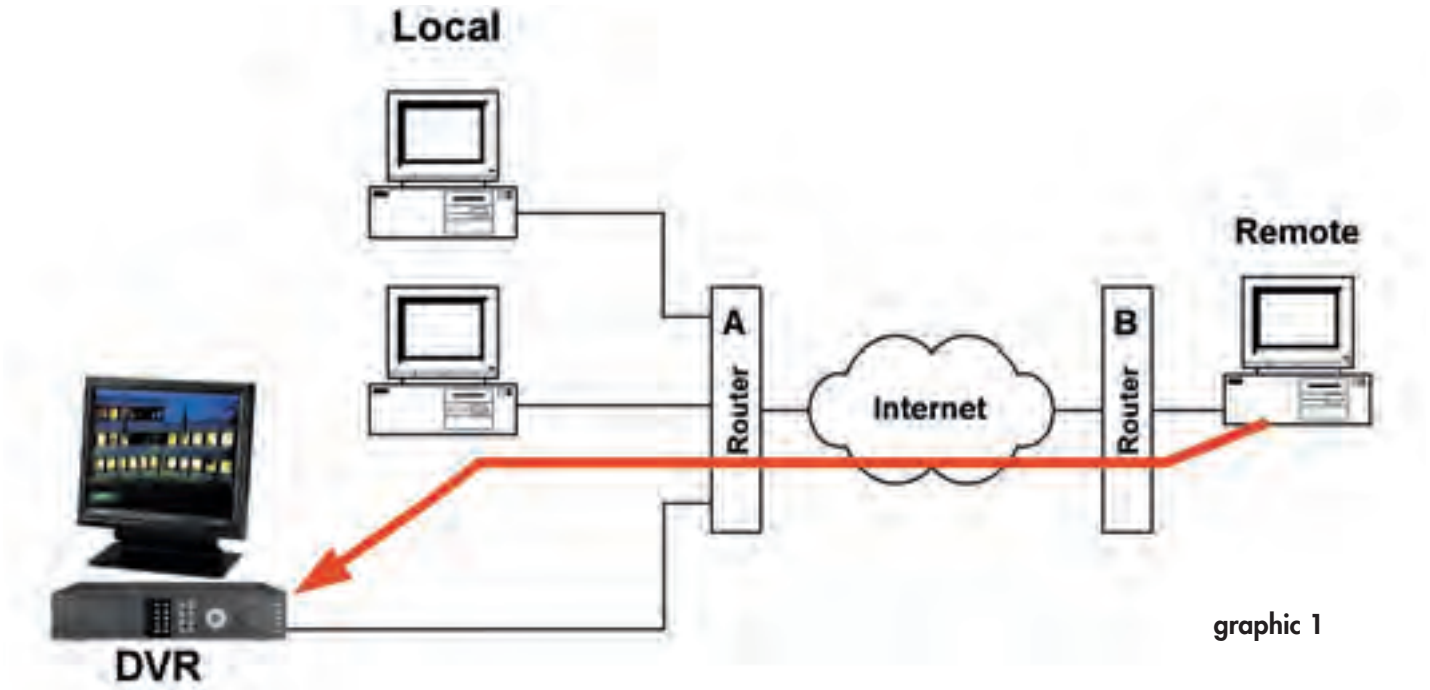
The IP address is important for the next steps done on the local side, i.e. the side with the DVR.

Static IP address

The static IP address is given once and is not changed again. With most providers, an IP address has to be applied for additionally and usually paid for.

Dynamic IP address

Now it is going to be tricky. Even within the Internet, the IP address is only to be given once at the same time. Thus, the routers will receive an IP address from the ISP when logging in. The providers use a little trick, because there are insufficient free IP adresses available in the Internet for every PC. Because it can be assumed, that not all users are in the Internet at the same time, the IP addresses of one provider are given out temporarily. This is usually done in two different ways. Either, one user interrupts the Internet connection, or in order to answer our question, the second way is the crucial one. To prevent a continuous operation, the provider automatically disconnects the unit from the Internet once, usually every 24 hours. Afterwards, the router can reconnect without delay, but it will receive a new IP address.



graphic 1

The access
In order to understand the access to a distant server, we show the process in different steps:

Step 1: the connection to the router A on the DVR side
If the router A has been given a fixed IP address, this address has to be entered into the respective programme only.
Even though, this is the most simple case, in practical operation, most of the routers are connected to the Internet with a dynamic IP address. This means, that the access is not as simple, because the IP address is unknown. It is just like trying to call somebody without knowing the telephone number. What can you do? We call somebody who knows the number and get connected. This is exactly the method which can be used with dynamic addresses on the Internet.

Dyndns.org
For this purpose, various providers offer their services. At the moment, the most popular provider is the English-speaking **dyndns.org** . A service is offered under this domain which is free of charge at the moment and allows to convert a dynamic IP address into a static subdomain. You have to register with them and receive a user name and password.
After logging in, select the service **Dynamic DNS**. You can now set up a subdomain by selecting "create Hosts". This subdomain consists of two parts. Let's assume we would like to work with the domain video-test.dyndns.org.

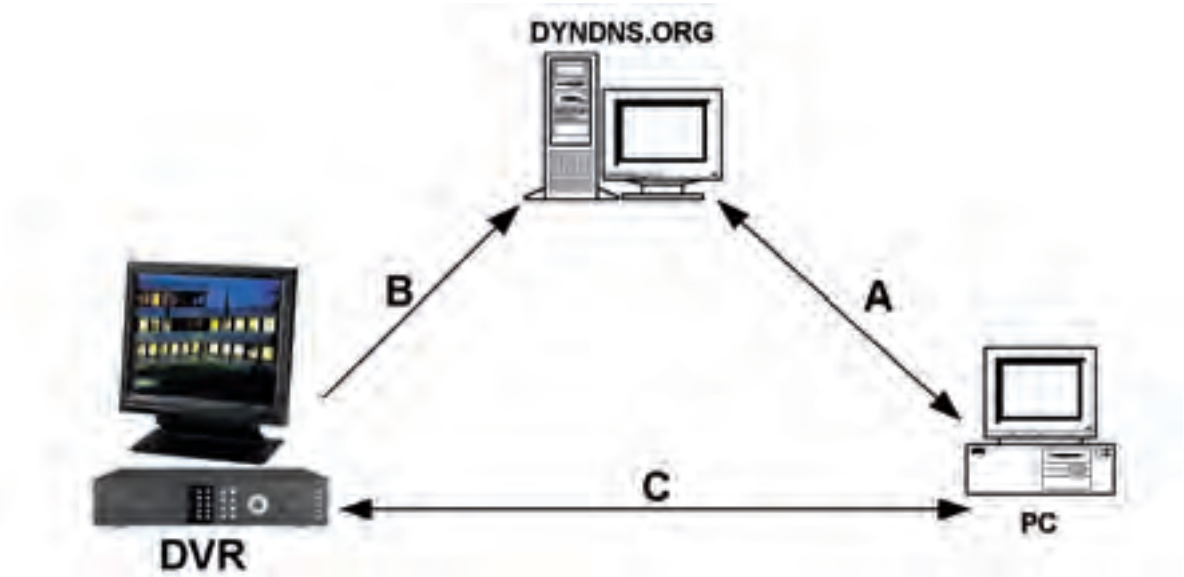
The first part would be video-test, the second part is dyndns.org . The first part can be selected as desired. With the second part, numerous suggestions are made from which we can select as desired. If the combination is still available, we can reserve this combination.

This data, i.e. user name, password, and name of domain are now entered into the router. This router must support DNS or also DDNS. For information on this subject, please refer to the instruction manual of the router.

After entering the data successfully, the following scenario can be seen (see **graphic 2**):

When the router connects to the Internet, it sends the allocated IP address to the DYNDNS service (B) at the same time. This IP address and the subdomain which has previously been set up are now interconnected.
In order to access the unit now, enter the address of the subdomain into the Internet explorer on the side Remote, like e.g. video-test.dyndns.org . By designing a subdomain, this request is automatically sent to dyndns.org (A). Without entering any more data, the request is sent to the IP address of the DVR router (C). Now, when the provider interrupts the connection, the router automatically sends a new IP address to dyndns.org and the user can directly access the unit again.

The advantage of this method is, that each user only has to remember the subdomain. This can be set up as a bookmark like any other address and send as a link.



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Step 2: Portforwarding
Now we know how a connection is made to the router which then only has to be told what to do with such a request. The IP addresses of the units connected to the router cannot be viewed directly from the Internet. Thus, the router has to forward these requests to the respective units (to route).

Unfortunately, this forwarding feature is called differently by every manufacturer for routers. Sometimes, it is called portforwarding, sometimes NAT, or virtual server.

This example shows the respective menu of the applied router Draytek Vigor 2500WE .

Description of the individual points
A : Name for e.g. the DVR, selectable as desired
B : Protocol (TCP in most cases), refer to instr. manual of the DVR
C : Port which is to be accessed externally.
D : Internal, actual IP of the DVR
E : Actual set port number of the DVR

What happens now if the DVR is accessed?
When the previously selected address http://video-test.dyndns.org:80 is entered into the Internet browser, it is forwarded to port 80 of the router via dyndns.org. Port 80 is the standard port for access via web browser. It does not have to be entered separately again when entering the address.

When configuring the router, we have set up that requests are forwared to the internal address 192.168.1.125 and the port 80 here via the official port 80.

If the address is amended as follows:
http://video-test.dyndns.org:82, the forwarding is changed. By entering another port, port 82 in this case, the router will then forward the request to the internal address 192.168.1.63 Port 80.

With this forwarding, it is now possible to access the digital recorder via the Internet.

Depending on the type of digital recorder, it may be necessary to set up further portforwardings. The data on the port numbers used can be found in the respective instruction manuals.

It may be necessary to carry out further adjustments to the Firewall which may exist, depending on the set up and security level of the network. For information on this subject and to IP addresses and port numbers which can be used, please contact the respective network administrator.

Video Webservers

The classic video surveillance applies own cable networks for the transmission of video signals. That is where the English term CCTV (closed circuit television) comes from. This means, that there is a considerable financial expense for larger systems or in spacious buildings. If the system is to be extended, long cabling distances have to be newly led. At the same time, very efficient networks are partly installed with optical cables nowadays, so that very wide range are available. Therefore, it is likely that these networks are also used for the transmission of video pictures. Here, it is not the point to use the leads or wires as it is the case at the 2-wire transmission. The point is rather to administer the video data in such a way, that these can be transmitted as data packages in the network and can be received and displayed by the connected computers.

Video webservers are available in various designs: as stand-alone units or as an additional feature to be installed in DVRs or in cameras (network cameras).

Transmitting side
The video webserver is the actual heart, because the cameras are connected to this video webserver. The signals are internally coded and are made available for the transmission via TCP/IP. Depending on the version, the webservers feature inputs and outputs, by which additional functions can be carried out. Alarm inputs can be connected in such a way, that alarm messages can be transmitted e.g. via e-mail or SMS; or switching operations can be started by it if alarm outputs are available.

The units are of course protected against misuse by several password levels.

Network connection
Depending on the network and power capability of the video webserver, picture transmission rates of up to 25 pictures per second are possible. The units support the standard 10BaseT with 10Mbits or with 10/100Mbits, depending on the type of unit. The units are assigned with a fixed IP address and the corresponding sub network mask.

ISDN, DSL, and Internet
A router is required to access units which are connected to the network via ISDN, DSL, or the Internet. It is impossible to recommend a certain router, because the routers are available in large quantities and the models are changing very quickly. Nevertheless, you should pay attention to the following features: NAT, DDNS, Dial-in (at ISDN), Firewall, built-in modem.

Additionally, valid admission for accessing the Internet is required. If there is no access to the Internet with a fixed IP address, a DDNS service is necessary. These DDNS services are offered in the Internet, sometimes free of charge.

Receiving side
A computer which has access to the telephone network, network (LAN), or direct access to the video webserver is always needed on the receiving side.

The video webserver is operated via an Internet browser or via supplied client software.

What is required to connect a webserver to a network?

Crossover cable
This is a network cable which is especially configured and only used if a video server is connected directly to a computer, e.g. if a laptop is to be connected directly to a digital recorder which is suitable for network applications. As opposed to the patch cable the transmitting leads and receiving leads are crossed over in the crossover cable.

Patch cable
This is the "standard" network cable. It is used each time a webserver is to be connected to a network socket, a hub, switch, or router.

IP address
Each unit within a network has its own IP address which can be compared to an individual telephone number. This is the only way to directly address individual units.

The IP address is only to be allocated once within one network.

Sub net mask
All units which should have access to the webserver, must use the same sub net mask. A typical sub net mask looks like this:
255.255.255.000

Gateway
This is usually the IP address of a router by which the webserver is connected to the Internet.

In most cases, routers occupy the first address in a network segment, e.g. 192.168.001.001

Webserver vs. client software
Units with a network connection can be divided roughly into two groups. The first group has an integrated webserver function and can be addressed via a browser just like an Internet site.

The advantage of this is that no software has to be installed on the inquiry computer.

The second group is addressed via so-called client software which is specific to the unit. This software is supplied with the unit. The client software is not subject to the restrictions of a browser and thus offers a lot more featuers. The software has to be installed on each computer. Some units use both methods.

Port release
Ports can be compard with admission doors in a network. The access to features of the network and the connected units is invisibly controlled via these ports. Those have to be released for this access, i.e. enabled for use. This is done via the network administrator. There are usually no restrictions within the network. This is different if an access from the outside via the Internet is to be feasible. In this case, only the ports which are required for e-mails and Internet services are released; all the others are locked. However, some of the video servers require special releases. If these are not made, an access within the network is generally possible. Due to the missing port release, it might only be possible to see e.g. the home page via the Internet but not a video transmission.

Only the required ports are released towards the Internet in order to obtain the greatest level of safety against worms and computer viruses.

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VWC-510COL

COLOUR D/N

Order No. 18.0870

High-resolution network colour camera, with integrated webserver and professional day/night function.

- Colour camera in CCD technology, 795x596 pixels, 480 lines, 0.05 lux (w/o IR illumination)
- With integrated IR suppression filter for perfectly good colour quality at daytime, automatic change of suppression filter at night for activating the IR light suitability and increasing the luminous sensitivity in B/W operation
- Connection for iris-controlled lens
- MPEG-4 picture compression
- Webserver function with direct connection to LAN or the Internet
- Protocols: HTTP, TCP/IP, DDNS, DHCP, PPPoE, ARP, RTP/RTSP, IGMP
- Operation and configuration via Internet Explorer
- Video motion detector function
- Digital alarm input and alarm output
- Password protection
- Supplied with PSU and recording software for 16 channels max.

VWS-500

COLOUR

Order No. 18.0880

Video webserver, for feeding the signals of one video source into LAN or the Internet.

- MPEG-4 picture compression
- 25fps max. at 720x576 pixels
- Webserver function with direct connection to LAN or the Internet
- Protocols: HTTP, TCP/IP, DHCP, PPPoE, UDP, RTP, RTSP
- Operation and configuration via Internet Explorer
- Video motion detector function
- 2 insulated digital alarm inputs and alarm outputs
- RS-485 output
- Password protection
- Supplied with PSU and recording software for 16 channels

VWR-510

COLOUR

Order No. 18.0890

Video web receiver, for feeding the signals of a video stream from LAN or the Internet.

- Compatible with VWS-500, VWC-510COL
- MPEG-4 decoding
- 25fps max. at 720x576 pixels
- Webserver function with direct connection to LAN or the Internet
- Protocols: HTTP, TCP/IP, DHCP, PPPoE, UDP, RTP, RTSP
- Operation and configuration via Internet Explorer
- 2 digital alarm inputs and alarm outputs
- RS-232 input, RS-422 input, RS-485 input
- Password protection
- Supplied with PSU and software tools

Model	VWC-510COL	VWS-500	VWR-510
Image sensor	8.5mm (⅓") CCD	-	-
Camera inputs	-	CVBS (PAL), BNC	-
Audio inputs	-	-	-
Video output	BNC	BNC	BNC, (PAL) S-video
Picture size	795x596 pixels	720x576 pixels	720x576 pixels
Min. illumination	0.05 lux at 1:1.2	-	-
Data compression protocol	MPEG-4	MPEG-4	MPEG-4
Ethernet	RJ45, 10/100Mbits/sec.	RJ45, 10/100Mbits/sec.	RJ45, 10/100Mbits/sec.
Protocols	HTTP, TCP/IP, DDNS DHCP, PPPoE, ARP, RTP/RTSP, IGMP	HTTP, TCP/IP, DHCP, PPPoE, UDP, RTP, RTSP	HTTP, TCP/IP, DHCP, PPPoE, UDP, RTP, RTSP
Power supply	12V⎓/800mA	12V⎓/625mA	12V⎓/610mA
Admiss. ambient temp.	-10 °C to +50 °C	-5 °C to +50 °C	5-50 °C
Dimensions	63x62x133mm	112x37x135mm	112x37x135mm
Weight	450g	325g	335g
Other features	BLC, AWB, FL, AGC, AES	-	-

VWC-300PT

Order No. 18.2050

COLOUR D/N NEW.

Network colour camera, with integrated webserver, for panning and tilting.

- Colour camera in CMOS technology, 160x120 pixels to 640x480 pixels
- Integrated pan/tilt head, hor. 240°, vert. 220°
- Day/night function
- Electronically controlled infrared illumination with 11 LEDs, 940nm, invisible
- 2-fold digital zoom
- Webserver function with direct connection to LAN or Internet
- Protocols: TCP/IP, PPPoE, DNS, HTTP
- M-JPEG picture compression
- Video motion detector function
- 2 alarm inputs, 1 alarm output
- Supplied with PSU, connection cable and software tools
- OSD: English

VWC-240WL

Order No. 18.2040

COLOUR D/N NEW.

Network colour camera, with integrated webserver, wireless.

- Colour camera in CMOS technology, 640x480 pixels
- Day/night function, 6 integrated LEDs
- 10-fold digital zoom
- Webserver function with direct connection to WLAN, LAN or Internet
- 2-way audio transmission, integrated microphone
- Protocols: TCP/IP, DHCP, PPPoE, ARP, ICM, FTP, SMTP, DNS, NTP, UPnP, RTSP, RTP, HTTP, TCP, UDP, 3GPP/ISMA RTSP
- M-JPEG or MPEG-4 picture compression
- Video motion detector function
- Supplied with PSU, table stand, connection cable and software tools
- OSD: English, German and Spanish

Model	VWC-300PT	VWC-240WL
Image sensor	6.4mm (¼") CMOS	6.4mm (¼") CMOS
Camera inputs	-	-
Audio inputs	-	1 x 3.5mm jack
Video output	-	-
Picture size	160x120 to 640x480 pixels	max. 640x480 pixels
Min. illumination		0 lux at IR
Data compression protocol	M-JPEG	M-JPEG, MPEG-4
Ethernet	RJ45, 10/100Mbits/sec.	RJ45, 10/100Mbits/sec.
Protocols	TCP/IP, PPPoE, DNS, HTTP	TCP/IP, DDNS, DHCP, PPPoE, ARP, ICM, FTP, SMTP, DNS, NTP, UPnP, RTSP, HTTP, TCP, UDP, 3GPP/ISMA RTSP
Power supply	5V⎓/1.5A via suppl. PSU 100-240V~/50Hz/10VA	5V⎓/1.2A via suppl. PSU 100-240V~/50Hz/10VA
Admiss. ambient temp.	0-40 °C	0-40 °C
Dimensions	ø 98mm x 115mm	65x115x40mm
Weight	520g	650g

VWS-400

Order No. 19.0260

COLOUR

Video webserver, for feeding the signals of up to 4 video sources into LAN or the Internet.

- Webserver function with direct connection to LAN or the Internet
- Individual picture display, multipicture display of one input, channel can be selected during individual picture display
- Video output (RCA)
- Protocols: HTTP, PPPoE, TCP/IP, UDP, RARP, ARP, PING, DNS, DDNS
- Second HTTP port can be adjusted
- Operation and configuration via Internet Explorer
- 5 video qualities can be selected
- Password protection
- Video motion detector function with sensitivity adjustment
- Picture transmission possible to an e-mail address or FTP server
- M-JPEG picture compression
- Multiple access (9 max. at the same time)
- Supplied with PSU, connection cable and software tools
- OSD: English, instruction manual: English, quick reference guide in German

VWS-440A

Order No. 18.8160

COLOUR

Video webserver, in a metal housing, for feeding the signals of up to 4 video sources into LAN or the Internet.

- Webserver function with direct connection to LAN or the Internet
- Display of individual pictures and quad pictures as well as automatic switching
- 1-channel audio transmission
- Protocols: HTTP, TCP/IP, UDP, RARP, PING, DNS, DDNS, ARP, DHCP, PPPoE
- Second HTTP port can be adjusted
- Operation and configuration via Internet Explorer
- 5 video qualities can be selected
- Password protection
- Video motion detector function with sensitivity adjustment
- Picture transmission possible to an e-mail address or FTP server
- Supplied with PSU, connection cable and software tools
- OSD: English, instruction manual: English

Model	VWS-400	VWS-440A
Image sensor	-	-
Camera inputs	4 x CVBS (PAL), RCA	4 x CVBS (PAL), BNC
Audio inputs	-	1 x 3.5mm jack
Video output	RCA, 1Vpp/75Ω	-
Picture size	176x144 to 704x576 pixels	160x120 to 640x480 pixels
Data compression protocol	M-JPEG	-
Ethernet	RJ45, 10/100Mbits/sec.	RJ45, 10/100Mbits/sec.
Protocols	HTTP, TCP/IP, UDP, RARP, PING, DNS, ARP, DHCP, PPPoE, DDNS	HTTP, TCP/IP, UDP, RARP, PING, DNS, ARP, DHCP, PPPoE
Power supply	5V⎓/1A via suppl. PSU 100-240V~/50Hz/15VA	5V⎓/1A via suppl. PSU 100-240V~/50Hz/15VA
Admiss. ambient temp.	0-40 °C	0-40 °C
Dimensions	57x28x102mm	120x29x92mm
Weight	110g	270g

SIP-4

Order No. 18.1070

IP power manager, 4 ports

For controlling a total of 4 power outlets via one network connection (LAN/WAN).

- Operation via Internet browser, directly on the unit or via supplied software
- Power outlets can be controlled individually
- Total output: 100-240V~/50-60Hz/2,500VA
- Power rating: 4 x 600W
- Black metal housing with 3-pin IEC connections, RJ45 jack for Cat. 5 network (10/100Mbps)
- Dimensions: 220x45x135mm
- Weight: 840g
- Matching shrouded 3-pin IEC plugs AAC-170P are available at option (4 pcs. for the power outlets)

Product Suggestions

The set-ups of video surveillance systems can be very different, depending on the requirements.

Where in the private sector a system is required which is rather easy to operate and available at a favourable price, surveillance systems for a salesroom or a production facility have to meet totally different requirements.

Due to numerous products with different functions, it is possible to perfectly meet the respective requirement. This results in a large number of possible combinations.

To simplify orientation, the following table shows possible products for different application ranges. Some products may appear more than once, because they can be used for different tasks.

Private Protection	Shop / Business	Business / Petrol Station / Industry
Areas		
entrance door, garage door driveway, terrace, carport	salesrooms, entrances, store rooms, parking lots, assembly halls	access control, protection of the external area, production control
Features, dep. on the applied material		
favourable price, quick mounting, most convenient operation	flexible, quick access to the stored data, remote access	remote access, matrix function, archivability, PTZ function
Number of cameras		
1–4	4–8	8–16
Recorders		
DMR-524	DMR-404	DVR-910A
DMR-140	DMR-408	DVR-920A
DMR-150SET	DVR-410H	DVR-1640A
	DVR-910A	DMR-416
Monitor		
available TV set via SCART adapter VAI-3	CDM-1503COL	TFT-1900COL
		CDM-1503COL
CDM-550, CDM-1203	VGA-1950COL via VTM-15	VGA-1950COL (if necessary via VTM-15)
Cameras		
AV-430SET	TVCCD-1706COL	EHD-350HCOL
TVCCD-147	TVCCD-184HCOL	EPTZ-3000
TVCCD-150SET	TVCCD-190HCOL	TVCCD-1630COL
TVCCD-160S	TVCCD-318HCOL	TVCCD-186HCOL
TVCCD-172SCOL	TVCCD-340HCOL	TVCCD-188HCOL
TVCCD-345VCOL	TVCCD-360WDR	TVCCD-360WDR
	TVCCD-370COL	TVCCD-820DNR
	TVCCD-92APCOL	
Quality of camera		
mostly basic resolution, easy mounting	high-resolution colour camera partly protected against vandalism	high-resolution colour camera partly controllable
Useful accessories		
PS-1000ST	PS-12CCD	EKB-500
PSS-5000	PSS-5000	PSU 24V AC
VAI-3 SCART adapter	PD-109	PS-120WP
VEC-200 cable BNC to RCA	VTM-15 video to VGA converter	lenses for TVCCD-820DNR
BNC-300 cable BNC to BNC	AV-3030TX	outdoor housing
PLL-1 video modulator	AV-3030R	VCC-59
	VCC-59	UG-88/UCR
	UG-88/UCR	VB-400V/VB-100V
		TW-230SET
		TVI-200

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The colour cameras of the TVCCD-190 series are part of the continuously developed one-cable technique from MONACOR. Besides well-established features like weatherproofness, a connection cable which can be extended to up to 500m, and extensive accessories, the cameras are now equipped with 42 IR LEDs which allow an increased operating range of up to 50m. Furthermore, the cameras feature a zoom lens. The focal length can be adjusted externally (3.6-9mm), opening of the housing is not required anymore. The protective class of IP68 is thus maintained at all times.

TVCCD-190HCOL

Order No. 18.1520

IP68 DIGITAL COLOUR D/N VARIO ZOOM

High-resolution colour camera

- Exview CCD chip, thus higher sensitivity

TVCCD-190COL

Order No. 18.1510

IP68 DIGITAL COLOUR D/N VARIO ZOOM

Colour camera

- Standard resolution

General specifications:

- Zoom lens (3.6-9mm), backlight compensation
- High-sensitivity, with day/night function
- Weatherproof and waterproof
- Electronically controlled IR illumination with 42 infrared LEDs, high operating range: 50m max.
- Automatic electronic shutter

Extensive accessories:

- PSU
- Sunshield
- Wall bracket
- Pre-assembled coaxial connection cable (RG-58/U, 30m)

Model	TVCCD-190HCOL	TVCCD-190COL
Image sensor	8.5mm (⅓") CCD	8.5mm (⅓") CCD
Number of pixels	hor. 752, vert. 582	hor. 500, vert. 582
Resolution	550 lines	480 lines
Lens	3.6-9mm/1:1.4-1.8	3.6-9mm/1:1.4-1.8
Min. illumination	0.01 lux	0.05 lux
Admiss. ambient temp.	-10 °C to +50 °C	-10 °C to +50 °C
Power supply	230V~/50Hz/10VA	230V~/50Hz/10VA
Dimensions	ø 75mm x 117mm	ø 75mm x 117mm
Weight	830g	830g
Other features	IP68, IR LED, AGC, ATW, BLC	IP68, IR LED, AGC, ATW, BLC

The high-resolution cameras of the TVCCD-170 series extend the one-cable technique of the TVCCD-160 series by an integrated infrared illumination.

TVCCD-172SCOL

IP68 DIGITAL COLOUR D/N

Order No. 19.0170

High-resolution colour camera in one-cable technique

- Day/night function

TVCCD-172S

IP68 DIGITAL

Order No. 19.0160

High-resolution B/W camera in one-cable technique

General specifications:

- Fixed focus lens (6mm)
- 30 infrared LEDs, max. operating range: 20m
- Weatherproof and waterproof
- Backlight compensation
- Automatic electronic shutter

Extensive accessories:

- PSU
- Sunshield
- Wall bracket
- Pre-assembled 30m coaxial connection cable (RG-58/U)

TVCCD-155HCOL

IP68 COLOUR VARIO ZOOM

Order No. 18.1560

High-resolution colour dome camera in one-cable technique

- Metal housing protected against vandalism
- Weatherproof and waterproof
- Day/night function
- Electronically controlled IR illumination with 24 infrared LEDs, max. operating range: 15m

- Zoom lens (3.6-9mm)
- 2.5-fold digital zoom
- Camera module for panning and tilting
- Automatic electronic shutter
- Automatic white balance
- Supplied with PSU
- Camera with 1m connection cable; with video lead, e.g. VCC-59 series, can be extended to a length of 300m max.

TVCCD-150COL

COLOUR

Order No. 18.1550

Miniature colour dome camera in one-cable technique

- Robust metal housing
- Fixed focus lens (3.6mm)

- Camera module for panning and tilting
- Automatic electronic shutter
- Automatic white balance
- Supplied with PSU
- Camera with 25cm connection cable; with video lead, e.g. VCC-59 series, can be extended to a length of 300m max.

Model	TVCCD-172SCOL	TVCCD-172S	TVCCD-155HCOL	TVCCD-150COL
Image sensor	8.5mm (⅓") CCD	8.5mm (⅓") CCD	8.5mm (⅓") CCD	8.5mm (⅓") CCD
Number of pixels	hor. 752, vert. 582	hor. 752, vert. 582	hor. 752 x vert. 582	hor. 752 x vert. 582
Resolution	550 lines	600 lines	550 lines	480 lines
Lens	6mm/1:2.0	6mm/1:2.0	3.6-9mm/1:1.4	3.6mm/1:2.0
Min. illumination	0.05 lux	0.01 lux	0.05 lux	0.05 lux
Admiss. ambient temp.	-10 °C to +50 °C	-10 °C to +50 °C	-10 °C to +50 °C	-10 °C to +50 °C
Power supply	230V~/50Hz/10VA	230V~/50Hz/10VA	230V~/50Hz/5VA (w/o LEDs) 230V~/50Hz/10VA (with LEDs)	230V~/50Hz/5VA
Dimensions	ø 60mm x 110mm	ø 60mm x 110mm	ø 138mm x 95mm	ø 87mm x 53mm
Weight	490g	490g	1,160g	261g
Other features	IP68, IR LED, AGC, BLC	IP68, IR LED, AGC, BLC	IP68, IR LED, AGC, ATW, BLC	AGC, ATW, BLC

The cameras of the TVCCD-160 series are the ideal solution for a cost-efficient video surveillance due to their one-cable technique. This camera series features weatherproofness with a protective class of IP68, a connection cable which can be extended to up to 500m, and extensive accessories. The built-in 3.6mm lens can be replaced by focal lengths of up to 12mm, if required. An unobtrusive surveillance is also possible with these cameras due to their compact size.

General specifications:
- Fixed focus lens (3.6mm)
- Automatic electronic shutter

Extensive accessories:
- PSU
- Sunshield
- Wall bracket
- Pre-assembled 30m coaxial connection cable (RG-58/U)

TVCCD-166SCOL

IP68 COLOUR D/N

Order No. 19.9050

High-resolution colour camera in one-cable technique
- Exview CCD chip
- Day and night function
- Extended sensitivity range (400-850nm)

TVCCD-162SCOL

IP68 COLOUR

Order No. 19.9040

High-resolution colour camera in one-cable technique
- Backlight compensation

TVCCD-160SCOL

IP68 COLOUR

Order No. 19.3950

Colour camera in one-cable technique
- Standard resolution
- Backlight compensation

TVCCD-162S

IP68

Order No. 19.9030

High-resolution B/W camera in one-cable technique

TVCCD-160S

IP68

Order No. 19.3550

B/W camera in one-cable technique
- Standard resolution

Model	TVCCD-166SCOL	TVCCD-162SCOL	TVCCD-160SCOL	TVCCD-162S	TVCCD-160S
Image sensor	8.5mm (⅓") CCD	8.5mm (⅓") CCD	8.5mm (⅓") CCD	8.5mm (⅓") CCD	8.5mm (⅓") CCD
Number of pixels	hor. 768, vert. 494	hor. 752, vert. 582	hor. 500, vert. 582	hor. 752, vert. 582	hor. 500, vert. 582
Resolution	550 lines	550 lines	480 lines	600 lines	420 lines
Lens	3.6mm/1:2.0	3.6mm/1:2.0	3.6mm/1:2.0	3.6mm/1:2.0	3.6mm/1:2.0
Min. illumination	0.01 lux	0.05 lux	0.05 lux	0.01 lux	0.01 lux
Admiss. ambient temp.	-10 °C to +50 °C	-10 °C to +50 °C	-10 °C to +50 °C	-10 °C to +50 °C	-10 °C to +50 °C
Power supply	230V~/50Hz/5VA	230V~/50Hz/5VA	230V~/50Hz/5VA	230V~/50Hz/5VA	230V~/50Hz/5VA
Dimensions	ø 32mm x 130mm	ø 32mm x 130mm	ø 32mm x 130mm	ø 28mm x 122mm	ø 28mm x 122mm
Weight	200g	200g	200g	115g	115g
Other features	IP68, AGC, white balance, D/N function, suit. for IR	IP68, AGC, white balance	IP68, AGC, white balance	IP68, suit. for IR, AGC	IP68, suit. for IR, AGC

TVCCD-188HCOL

IP66 COLOUR VARIO ZOOM D/N

Order No. 18.0260

High-resolution colour camera, with professional day/night function.

- With integrated IR suppression filter for perfectly good colour quality at daytime, automatic change of suppression filter at night for activating the IR light suitability and increasing the luminous sensitivity in B/W operation
- Exview HAD CCD chip
- Focus compensation for IR operation
- 3-fold digital zoom
- Zoom lens (3.8-9.5mm), DC-controlled iris
- 40 infrared LEDs for automatic adjustment of the luminous intensity (IR operating range: 50m max.)
- Automatic electronic shutter 1/50 to 1/100,000 second
- Features: BLC, AGC, FL and digital zoom (each can be adjusted via DIP switches at the camera housing)
- Incl. sunshield, wall bracket and 1.75cm connection cable for power supply and video (BNC)

TVCCD-186HCOL

IP65 COLOUR VARIO ZOOM D/N

Order No. 18.1330

High-resolution colour camera, with professional day/night function.

- With integrated IR suppression filter for perfectly good colour quality at daytime, automatic change of suppression filter at night for activating the IR light suitability and increasing the luminous sensitivity in B/W operation
- Super HAD CCD chip
- Zoom lens (3.8-9.5mm), DC-controlled iris
- 30 infrared LEDs for automatic adjustment of the luminous intensity (IR operating range: 40m max.)
- Automatic electronic shutter 1/50 to 1/100,000 second
- Features: BLC, ALC, FLK, mirror-inverted picture display, phase, day/night, can partly be adjusted via menu control (OSD)
- Adjusting controls and menu control can be accessed from the outside beneath a cover at the housing
- Connection for test monitor for an easy installation
- Cable inlet inside the wall bracket
- Integrated heating
- Incl. sunshield, movable and tiltable wall bracket and 0.8m connection cable for power supply and video (BNC)

Model	TVCCD-188HCOL	TVCCD-186HCOL
Image sensor	8.5mm (⅓") CCD	8.5mm (⅓") CCD
Number of pixels	hor. 752 x vert. 582	hor. 752 x vert. 582
Resolution	480 lines (colour)	520 lines (colour)
	520 lines (B/W)	580 lines (B/W)
Lens	3.8-9.5mm/1:1.2	3.8-9.5mm/1:1.2
Min. illumination	0.01 lux	0.01 lux
	(w/o IR illumination)	(w/o IR illumination)
Admiss. ambient temp.	-10 °C to +50 °C	-10 °C to +40 °C
Power supply	12V⎓/1A	12V⎓/950mA
		24V~/500mA
Dimensions	100x94x229mm	79x77x172mm
Weight	2kg	1.5kg
Other features	IP66, AGC, BLC, FL,	IP65, ALC, BLC, FLK,
	suit. for IR	suit. for IR

TVCCD-184HCOL

IP67 COLOUR VARIO ZOOM D/N

Order No. 19.9910

High-resolution colour camera, with professional day/night function.

- With integrated IR suppression filter for perfectly good colour quality at daytime, automatic change of suppression filter at night for activating the IR light suitability and increasing the luminous sensitivity in B/W operation
- Zoom lens (3.8-9.5mm), DC-controlled iris
- 16 infrared LEDs for automatic adjustment of the luminous intensity
- Automatic electronic shutter
- Features: BLC, AGC, ESC and FL (each can be switched off)
- Incl. sunshield and wall bracket

TVCCD-115COL

IP65 COLOUR VARIO ZOOM D/N NEW.

Order No. 18.2110

Colour camera, with day/night function.

- Metal outdoor housing
- Zoom lens (3.5-8mm), fixed iris
- 48 infrared LEDs with automatic activation (IR operating range: 30m max.)
- Automatic switching from colour operation to B/W operation, dep. on the illumination
- Focus and zoom to be adjusted directly at the camera
- Features: BLC, AGC, ES and FL (each can be switched off)
- Incl. sunshield, wall bracket and 0.7m connection cable for power supply and video (BNC)

Model	TVCCD-184HCOL	TVCCD-115COL
Image sensor	8.5mm (⅓") CCD	8.5mm (⅓") CCD
Number of pixels	hor. 752 x vert. 582	hor. 500 x vert. 582
Resolution	480 lines (colour), 520 lines (B/W)	420 lines
Lens	3.8-9.5mm/1:1.2	3.5-8mm/1:1.4
Min. illumination	0.5 lux (colour), 0.03 lux (B/W)	0.1 lux (colour), 0 lux (B/W) with IR illumination
Admiss. ambient temp.	-10 °C to +50 °C	-10 °C to +50 °C
Power supply	12V⎓/max. 350mA	12V⎓/1,000mA
Dimensions	73x66x124mm	105x125x225mm
Weight	700g	1.3kg
Other features	IP67, AGC, BLC, ESC, suit. for IR	IP65, AGC, BLC, ES, suit. for IR

TVCCD-360WDR

Order No. 18.0900

IP66 COLOUR WDR VARIO ZOOM D/N

High-resolution colour dome camera with wide dynamic range function and professional day/night function.
The extended dynamic range of the wide dynamic function allows an application even with less than perfect lighting conditions such as backlighting. With this camera it is possible to recognise the faces of people standing in front of a bright window or in a doorway.

- Metal housing protected against vandalism
- 22 infrared LEDs for automatic adjustment of the luminous intensity
- Focus compensation for IR operation
- With integrated IR suppression filter for perfectly good colour quality at daytime, automatic change of suppression filter at night for activating the IR light suitability and increasing the luminous sensitivity in B/W operation
- Zoom lens (4-9mm)
- 2.5-fold digital zoom
- Camera module for panning and tilting
- Automatic electronic shutter
- Extensive adjustment facilities via on-screen menu
- 40cm connection cable for power supply and video (BNC)

TVCCD-345VCOL

Order No. 18.0640

IP67 COLOUR VARIO ZOOM D/N

High-resolution colour dome camera, with professional day/night function.

- Metal housing protected against vandalism
- 22 infrared LEDs for automatic adjustment of the luminous intensity
- With integrated IR suppression filter for perfectly good colour quality at daytime, automatic change of suppression filter at night for activating the IR light suitability and increasing the luminous sensitivity in B/W operation
- Exview HAD CCD chip
- Focus compensation for IR operation
- Zoom lens (4-9mm)
- 3-fold digital zoom
- Camera module for panning and tilting
- Automatic electronic shutter
- Features: AGC, BLC and FL (each can be switched off)
- 40cm connection cable for power supply and video (BNC)

Model	TVCCD-360WDR	TVCCD-345VCOL
Image sensor	8.5mm (⅓") CCD	8.5mm (⅓") CCD
Number of pixels	hor. 752 x vert. 582	hor. 752 x vert. 582
Resolution	480 lines (colour)	470 lines (colour)
	520 lines (B/W)	520 lines (B/W)
Lens	4-9mm/1:1.2	4-9mm/1:1.2
Min. illumination	0.01 lux	0.01 lux
	(w/o IR illumination)	(w/o IR illumination)
Admiss. ambient temp.	-10 °C to +50 °C	-10 °C to +50 °C
Power supply	12V⎓/800mA or 24V~/400mA	12V⎓/500mA
Dimensions	ø 155mm x 100mm	ø 155mm x 100mm
Weight	850g	850g
Other features	suit. for IR, AGC, FL	suit. for IR, AGC, BLC, FL

TVCCD-318HCOL

IP67 COLOUR VARIO ZOOM D/N

Order No. 19.9920

High-resolution colour dome camera with professional day/night function

- Protected against vandalism
- With integrated IR suppression filter for perfectly good colour quality at daytime, automatic change of suppression filter at night for activating the IR light suitability and increasing the luminous sensitivity in B/W operation
- Zoom lens (3.8-9.5mm), DC-controlled iris
- Camera module for panning and tilting
- 3-axis swing frame, thus wall mounting is possible
- Automatic electronic shutter
- Features: BLC, FL and ESC (each can be switched off); AWB/ATW, switchable
- Metal housing can only be opened with supplied special purpose key

EHD-350HCOL

COLOUR VARIO ZOOM IP66

Order No. 18.1370

High-resolution colour dome camera

- Metal housing protected against vandalism
- Zoom lens (9-22mm)
- Camera module for panning and tilting
- Automatic electronic shutter
- Features: AGC and BLC (each can be switched off), automatic white balance
- Integrated heating, thermostat-controlled
- 90cm connection cable for power supply and video (BNC)

Model	TVCCD-318HCOL	EHD-350HCOL
Image sensor	8.5mm (⅓") CCD	8.5mm (⅓") CCD
Number of pixels	hor. 752 x vert. 582	hor. 752 x vert. 582
Resolution	480 lines (colour), 520 lines (B/W)	520 lines
Lens	3.8-9.5mm/1:1.3	9-22mm/1:1.2
Min. illumination	0.5 lux (colour), 0.03 lux (B/W)	0.5 lux
Admiss. ambient temp.	-10 °C to +50 °C	-10 °C to +50 °C
Power supply	12V⎓/180mA	12V⎓/15W, 24V~/15W
Dimensions	ø 155mm x 100mm	130x130x99mm
Weight	1.3kg	1.7kg
Other features	IP67, AGC, BLC, ESC, suit. for IR	AGC, BLC

TVCCD-1700COL

Order No. 19.7300

COLOUR VARIO ZOOM UVV-Kassen zertifiziert

High-resolution colour dome camera

- Zoom lens (2.6-6mm) with controlled iris
- Automatic electronic shutter
- Automatic white balance
- Backlight compensation can be switched on or off
- 30cm connection cable for power supply and video (BNC)
- Approved in accordance with the German accident prevention regulations

TVCCD-1706COL

Order No. 18.1620

COLOUR VARIO ZOOM

High-resolution colour dome camera

- Zoom lens (4-9mm) with controlled iris
- Automatic electronic shutter
- Automatic white balance
- 30cm connection cable for power supply and video (BNC)

TVCCD-380COL

Order No. 18.1740

IP66 COLOUR D/N

Colour dome camera, with professional day/night function.

- Metal housing protected against vandalism
- 24 infrared LEDs for automatic adjustment of the luminous intensity
- Sony HAD CCD chip
- Fixed focus lens (3.8mm)
- Camera module for panning and tilting
- Automatic electronic shutter
- 1m connection cable for power supply and video (BNC)

Model	TVCCD-1700COL	TVCCD-1706COL	TVCCD-380COL
Image sensor	6.35mm (¼") CCD	8.5mm (⅓") CCD	8.5mm (⅓") CCD
Number of pixels	hor. 752 x vert. 582	hor. 753 x vert. 582	hor. 500 x vert. 582
Resolution	480 lines	480 lines	420 lines (colour) 480 lines (B/W)
Lens	2.6-6mm/1:1.4-1.8	4-9mm/1:1.6-2.4	3.8mm/1:2.0
Min. illumination	1.0 lux	0.5 lux	0.5 lux (w/o IR illumination)
Admiss. ambient temp.	0-40 °C	0-40 °C	-10 °C to +50 °C
Power supply	12V⎓/400mA	12V⎓/110mA	12V⎓/500mA
Dimensions	ø 110mm x 85mm	ø 125mm x 92mm	ø 93mm x 80mm
Weight	310g	420g	550g
Other features	AGC, BLC	AGC, ATW, AES	suit. for IR, AGC, BLC

TVCCD-340HCOL

COLOUR

Order No. 18.0460

High-resolution miniature colour dome camera

TVCCD-340COL

COLOUR

Order No. 18.0450

Miniature colour dome camera

- Standard resolution

General specifications:

- Protected against vandalism
- Metal housing
- Camera module for panning and tilting
- Fixed focus lens (3.6mm)
- Automatic electronic shutter
- Automatic white balance
- 40cm connection cable for power supply and video (BNC)

TVCCD-370COL

COLOUR VARIO ZOOM

Order No. 18.1340

High-resolution colour dome camera

- White plastic housing
- Camera module for panning and tilting
- Zoom lens (3-9mm)
- Automatic electronic shutter
- Automatic white balance

TVCCD-310COL

COLOUR

Order No. 18.1720

Miniature colour dome camera

- Fixed focus lens (3.6mm)
- Automatic electronic shutter
- Automatic white balance
- 40cm connection cable for power supply and video (BNC)

Model	TVCCD-340HCOL	TVCCD-340COL	TVCCD-370COL	TVCCD-310COL
Image sensor	8.5mm (⅓") CCD	8.5mm (⅓") CCD	8.5mm (⅓") CCD	6.35mm (¼") CCD
Number of pixels	hor. 752 x vert. 582	hor. 510 x vert. 492	hor. 752 x vert. 582	hor. 512 x vert. 582
Resolution	480 lines	350 lines	480 lines	350 lines
Lens	3.6mm/1:2.0	3.6mm/1:2.0	3-9mm/1:1.2	3.6mm/1:2.0
Min. illumination	1 lux	0.5 lux	0.2 lux	0.5 lux
Admiss. ambient temp.	0-40 °C	0-40 °C	0-40 °C	0-40 °C
Power supply	12V⎓/160mA	12V⎓/90mA	12V⎓/150mA	12V⎓/70mA
Dimensions	ø 115mm x 70mm	ø 115mm x 70mm	ø 115mm x 80mm	ø 100mm x 60mm
Weight	365g	365g	240g	204g
Other features	AGC	AGC	AGC	AGC, ATW

TVCCD-820DNR

Order No. 18.1640

High-resolution colour camera with professional day/night function

- With integrated infrared suppression filter for perfectly good colour quality at daytime
- Automatic or remote-controlled change of suppression filter at night for activating the infrared light suitability and increasing the luminous sensitivity in B/W operation
- Digital noise reduction (DNR) for saving hard disk capacities when recording with digital recorders
- Integrated video motion detector with 4 programmable zones
- Privacy masking function
- Extensive functions to be configured via on-screen menu control (OSD)
- C and CS mount thread
- Connection for DC-controlled and video signal controlled lenses

TVCCD-800COL

Order No. 18.0480

High-resolution colour camera with wide dynamic range function and day/night function.

The extended dynamic range of the wide dynamic function allows an application even with less than perfect lighting conditions such as backlighting. With this camera it is possible to recognise the faces of people standing in front of a bright window or in a doorway.

- High resolution
- Low-speed shutter: up to 320x
- Backlight compensation
- Privacy masking function
- Mirror function
- Control via RS-485 possible
- On-screen menu control (OSD)
- Title generator
- CS mount thread
- Connection for DC-controlled and video signal controlled lenses

Model	TVCCD-820DNR	TVCCD-800COL
Image sensor	8.5mm (⅓") CCD	8.5mm (⅓") CCD
Number of pixels	hor. 752 x vert. 582	hor. 752 x vert. 582
Resolution	540 lines	520 lines
Lens	not supplied	not supplied
Min. illumination	0.3 lux (colour), 0.1 lux (B/W)	0.018 lux
Admiss. ambient temp.	-10 °C to +50 °C	-10 °C to +50 °C
Power supply	12V⎓/300mA	90-260V~/50Hz/10VA
Dimensions	65x65x130mm	65x65x140mm
Weight	450g	500g
Other features	ATW, AGC, BLC, DNR, OSD	AGC, ATW, BLC, OSD, RS-485

The high-resolution cameras of the TVCCD-600 series are the perfect solution for a video surveillance which can subsequently be extended as desired. Due to the standardised lens connection, a large selection of lenses is available, from the 1.6mm wide angle lens to the 100mm tele lens. No separate PSU is needed for the versions with 230V connection, thus no extra effort required. In combination with an outdoor housing, a professional outdoor surveillance can be realised, too.

General specifications:

- Digital signal processor
- C and CS mount thread, selectable via adjusting wheel
- Features: AGC, BLC, ES (can be switched off)
- Connection for DC-controlled and video signal controlled lenses
- Mounting plate with thread, to be used either for wall mounting or ceiling suspension
- Operating voltage: 85-265V~ (623 cameras)

TVCCD-623ECOL

DIGITAL COLOUR D/N

Order No. 19.8240

High-resolution colour camera

- Day/night function
- High-sensitivity due to Exview CCD chip
- Adjustable shutter

TVCCD-623COL

DIGITAL COLOUR D/N

Order No. 19.8220

High-resolution colour camera

- Day/night function
- Adjustable shutter

TVCCD-624COL

DIGITAL COLOUR D/N

Order No. 19.8260

High-resolution colour camera

- Day/night function
- Adjustable shutter
- Operating voltage: 12V⎓ or 24V~

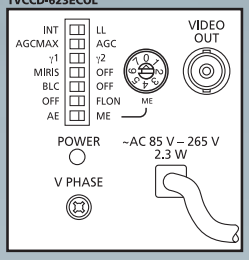
TVCCD-623

DIGITAL

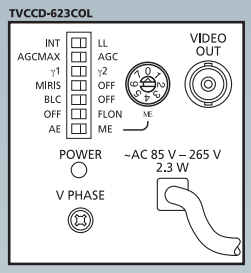
Order No. 19.8210

High-resolution B/W camera

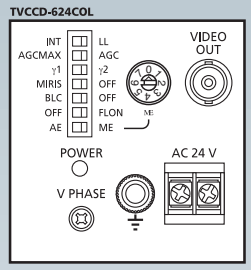
TVCCD-623ECOL



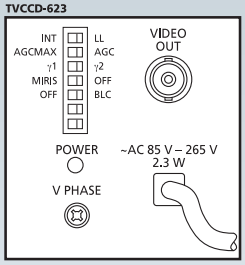
TVCCD-623COL



TVCCD-624COL



TVCCD-623



Model	TVCCD-623ECOL	TVCCD-623COL	TVCCD-624COL	TVCCD-623
Image sensor	8.5mm (⅓") CCD	8.5mm (⅓") CCD	8.5mm (⅓") CCD	8.5mm (⅓") CCD
Number of pixels	hor. 752 x vert. 582	hor. 752 x vert. 582	hor. 752 x vert. 582	hor. 752 x vert. 582
Resolution	480 lines	480 lines	480 lines	600 lines
Lens	not supplied	not supplied	not supplied	not supplied
Min. illumination	0.01 lux	0.1 lux	0.1 lux	0.01 lux
Admiss. ambient temp.	0-40 °C	0-40 °C	0-40 °C	0-40 °C
Power supply	85-265V~/50Hz/2.3VA	85-265V~/50Hz/2.3VA	24V~/300mA, 12V⎓/500mA	85-265V~/50Hz/2.1VA
Dimensions	130x70x58mm	130x70x58mm	130x70x58mm	130x70x58mm
Weight	450g	450g	450g	450g
Other features	AGC, ATW, FL, BLC, ES	AGC, ATW, FL, BLC, ES	AGC, ATW, FL, BLC, ES	AGC, BLC, ES, suit. for IR

TVCCD-462COL

COLOUR DIGITAL

Order No. 19.9330

High-resolution colour camera

- Digital signal processor (DSP)
- Switchable backlight compensation
- White balance: ATW and AWB
- Automatic electronic shutter
- Connection for DC-controlled and video signal controlled lenses
- C and CS mount thread

TVCCD-400COL

COLOUR DIGITAL

Order No. 19.3560

Colour camera

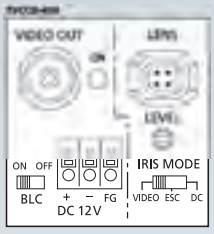
- Digital signal processor (DSP)
- C and CS mount thread for the lens
- Automatic electronic shutter 1/50 to 1/100,000 second
- Switchable AGC (min./max.)
- Automatic white balance
- Switchable backlight compensation
- Switchable gamma correction
- Switchable flicker compensation
- Connection for DC-controlled lenses and video signal controlled lenses

TVCCD-450

Order No. 19.5350

B/W camera

- Switchable backlight compensation
- Automatic electronic shutter
- Connection for DC-controlled and video signal controlled lenses
- C and CS mount thread



Model	TVCCD-462COL	TVCCD-400COL	TVCCD-450
Image sensor	8.5mm (⅓") CCD	8.5mm (⅓") CCD	8.5 mm (⅓") CCD
Number of pixels	hor. 752 x vert. 582	hor. 500, vert. 582	hor. 500 x vert. 582
Resolution	510 lines	420 lines	380 lines
Lens	not supplied	not supplied	not supplied
Min. illumination	0.1 lux	0.5 lux	0.1 lux
Admiss. ambient temp.	0-40 °C	0-40 °C	0-40 °C
Power supply	12V⎓/150mA	12V⎓/200mA	12V⎓/150mA
Dimensions	50x58x68mm	48x43x143mm	45x40x115mm
Weight	180g	190g	270g
Other features	AGC, ATW, BLC, ES	switchable AGC	suit. for IR, AGC

Camera Technology

Today, current camera technology allows surveillance applications which previously would have only been possible by applying very expensive special cameras.

Many different camera models and versions are available for versatile applications. The range of products include camera modules for concealed mounting, compact cameras, system cameras, and high-speed dome cameras.

The type of camera to be selected depends on the range of application.

The cameras which are shown in this catalogue can be divided into different camera classes.

Module cameras

The module cameras are also called board cameras or PCB cameras and are generally supplied without a housing or only with protection against accidental contact and short connection cable. These types of cameras are generally intended for concealed or subsequent mounting in their own housings. Only small openings in front of the lenses are required to have a good visibility. In some cases, for module cameras with pinhole lenses an opening of 2mm diameter is sufficient.

At basic modules with lenses with a thread diameter of 12mm, it is possible to replace those with other focal lengths.

Compact cameras

This group includes cameras which are completely ready for operation. They usually feature replaceable lenses, but are already installed into a housing and therefore ready for operation. They are available in various designs. Cameras with one-cable technology are very popular in this case, particularly cameras in outdoor housings, e.g. the TVCCD-160S series from MONACOR INTERNATIONAL.

Cameras in types of housings which can hardly be identified as cameras (e.g. disguised as motion detectors or smoke alarms) are also included in this group.

With compact cameras, applications of basic up to medium requirements can be met at a favourable price. For merely checking whether there are persons in certain areas, the features and resolution are sufficient.

System cameras

The system cameras are the classic type of camera technology. Due to the standard CS or C mount thread, these cameras can be combined with numerous lenses which are never supplied with the camera. Only thus it is possible to select the perfect picture detail. These cameras can be adapted to the application up to a high degree due to versatile types and their different features. The kind of application ranges from standard applications to applications of high requirements.

Speed dome cameras

High-speed dome cameras are the racing machines among the cameras, so to speak.

On the one hand, they consist of a high-quality camera with motorzoom lens and on the other hand, they feature a mechanism for quick panning and tilting. Movements of several hundred degrees per second are carried out, i.e. a complete 360° turn is done in less than 1.5 seconds. A standard pan/tilt head takes approx. 60 seconds for the same task.

The automatic focus of the camera provides a clear picture at all times.

Presets allow a quick access to stored positions. In this case, the camera is moved automatically in a horizontal and a vertical direction and the zoom is set automatically to the stored focal length. The automatic focus provides a clear picture.

To control a high-speed dome camera, a control unit is always required. This can be an independent control unit. The latest units for picture storing and transmission can also control this type of camera. Despite the parallel connection, the supplied interface (RS-485) provides an independent control due to its bus concept.

Network cameras

This latest class of cameras features a totally different connection to customary CCTV cameras. Network cameras are a combination of video webserver and CCTV camera.

The signal transmission to the monitor is not done via a separate coaxial cable. The signals are split up in electronic data packages and then transmitted within a network via the TCP/IP.

Besides the BNC output, this type of camera additionally features a direct connection for a computer network.

The advantage of this camera class is that no new cables have to be laid, but the existing computer network can be used instead. Each connected computer can access the pictures. For this purpose, the computer must at least have an Internet browser as a basis. Further features, like e.g. recording on any desired computer can be realised via special additional programmes. In future there will be many new products in this field.

Additional types of cameras

More and more features are integrated into the camera. Thus, cameras with built-in motorzoom lenses or with integrated wireless video transmitters are already available.

Important notes concerning the choice of camera

Resolution

An image sensor is built up of individual pixels which are located in a grid side by side and on top of one another.

A video picture consists of 625 lines according to present standards. This results in a visible resolution of approx. 580 pixels vertically and approx. 760 pixels horizontally. These values are determined by TV standards and cannot be compared with values of the digital photography where the picture format is unlimited. If the picture is too large, it is scrolled.

The vertical resolution is almost the same with approx. 580 pixels at most cameras. The high-resolution camera is able to represent approx. 760 pixels in horizontal direction and the standard camera approx. 500 pixels. Slight deviations of e.g. 20 pixels can hardly be noticed.

While the maximum number of pixels can clearly be demonstrated, the indication of the resolution does not really seem to be very reasonable. The resolution is defined as the quantity of vertical lines which can still be resolved by the camera. The resolution is not only determined by the CCD chip but also by the integrated signal processing. The better the signal processing, the higher the resolution.

Operating voltage
Today, 12V DC, 24AC, and 230V AC are customary as operating voltage. The majority of units are supplied with 12V DC. Regulated PSUs are required to operate these cameras.

If ordinary plug-in PSUs are used, it has to be ensured that these are only charged with half of the max. current as otherwise they may have a short life.

There are also camera systems which already feature a built-in PSU and thus can directly be connected to the 230V mains. This facilitates the insertion into an outdoor housing, because in most cases a 230V heating is provided and in this case no additional PSU has to be applied for the camera.

Cameras with a 24V AC voltage supply are quite often used for industrial applications. Current cameras often feature the facility to be operated with both 12V DC and 24V AC.

Minimum illumination
With this indication stated in LUX, the sensitivity of a camera can be rated. This value is the luminous intensity which has to reach the image sensor to produce a picture which can still be recognised. The value for a colour camera compared to a B/W camera is generally higher by the factor 10. Unfortunately, the phrase "All cats are grey at night" also applies to video surveillance technology.

The light quantity actually required at the object to be observed must be many times higher, as only a certain part of the light striking the object is reflected. It is also the lens used which further reduces the quantity of light reaching the image sensor.

Regarded as a mere value, this indication allows to compare the different sensitivities of camera systems with each other.

B/W cameras feature a certain sensitivity in the invisible infrared range as opposed to colour cameras. At standard colour cameras, this area is blocked by a suppression filter, so that the colour reproduction is not affected.

Cameras with an Exview CCD image sensor are very popular. These image sensors offer a higher sensitivity and an extended sensitivity range into the near infrared range.

Day/night switching
These colour cameras switch to B/W operation if the luminous intensity falls below a minimum value. To simplify matters, the brightness information of the three colour pixels are now added. Thus, the sensitivity is increased. Additionally, some cameras do not feature a suppression filter so that the camera is then suitable for IR in B/W oper-ation. At top-class products (e.g. TVCCD-800COL), this filter is mechanically moved in front of the image sensor in order to provide a perfect picture in both types of operation.

TVCCD-820DNR see page S 35

Automatic gain control (AGC)
Within the video output signal, the range of 0.25 to 1Vpp is available for the actual video signal. If the luminous intensity is reduced, the max. output level is no longer reached. Only a part of this range is used for the video signal. The picture gets darker and becomes poorer in contrast.

The automatic gain control (AGC) tries to keep a constant output level taking the illumination into account. The AGC is able to compensate brightness fluctuations as they occur in normal rooms. The brightness of the picture is largely kept at a constant level. The high-dynamic AGC of the camera top models is capable of regulating even great brightness fluctuations.

With poor luminous intensity, the amplification factor becomes very high, and picture noise may occur.

Electronic shutter (ES)
The picture information is transmitted for signal processing 50 times per second. The sensitive image sensor is exposed for a max. of 20 milliseconds for each picture. With a very high luminous intensity, so much light has already fallen on the chip that overexposure will occur.

The trick is to read the chip beforehand and to transmit the video information earlier. This is done by the electronic shutter. Even short shutter times of 1/50,000 seconds are possible. With basic cameras the shutter oeprates automatically. With high-quality cameras the function can be switched off or the shutter times can even manually be preset. This is e.g. important for process monitoring.

The automatic ES is used in module and compact cameras to match these cameras to lighting conditions of great fluctuations. Only thus it is possible to use this type of camera for outside applications.

Backlight compensation (BLC)
If a bright point of light falls into the camera aperture, usually the darker areas next to it are no longer visible.

For outside monitoring e.g. a dark door and a white wall next to it, either the door is visible and the wall is too bright, or the wall is visible and the door is too dark. The BLC reduces the differences in contrast of these areas so that ideally both areas are perfectly visible.

Output for iris control
While AGC and ES are mere electronic procedures to match a camera to different lighting conditions, the iris control is the ideal method to reduce the light quantity already at the lens.

For this purpose, special lenses are required which have corresponding control connections.

In this case, the advantage is the increase of the depth of focus. Only by reducing the aperture, it is possible to increase the area where the picture is clear.

Depending on the camera model, connections for lenses with automatic iris or DC-controlled iris or both are available.

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EPTZ-500

Order No. 18.1780

COLOUR VARIO ZOOM

High-speed colour dome camera, ceiling flush mount.

- Consisting of camera, dome camera housing with clear dome, suitable for indoor applications
- Motor zoom lens (4.1-73.8mm)
- 18-fold optical zoom, 12-fold digital zoom
- 192 possible presets
- 360° pan (endless), 89.5° tilt with mechanical auto flip
- Pan speed: 0.1-120°/sec. (manual), tilt speed: 0.1-60°/sec. (manual)

EPTZ-1000

Order No. 18.1610

IP66 COLOUR VARIO ZOOM

High-speed colour dome camera

- Consisting of camera, dome camera outdoor housing with clear dome and heating/fan, wall bracket, suitable for outdoor applications
- Motor zoom lens (4.1-73.8mm)
- 18-fold optical zoom, 12-fold digital zoom
- 192 possible presets
- 360° pan (endless), 89.5° tilt with mechanical auto flip
- Pan speed: 0.1-120°/sec. (manual), tilt speed: 0.1-60°/sec. (manual)

EPTZ-3000

Order No. 18.1790

IP66 COLOUR VARIO ZOOM D/N

High-resolution colour dome camera, high-speed, with day/night function.

- Consisting of camera, dome camera outdoor housing with clear dome and heating/fan, wall bracket, suitable for outdoor applications
- Automatic B/W switching if light is too low
- Motor zoom lens (3.3-99mm)
- 30-fold optical zoom, 8-fold digtial zoom
- 192 possible presets
- 360° pan (endless), 180° tilt with electronic auto flip
- Pan speed: 0.1-360°/sec. (manual), tilt speed: 0.01-180°/sec. (manual)

General specifications:

- Auto pan function
- On-screen menu control (OSD)
- Exposure control: automatic/manual
- RS-485 interface for triggering the camera via control panel EKB-500 or DCJ-2 (for this purpose, switch dome camera internally to Pelco D protocol)
- 4 alarm inputs, 1 alarm output
- Integrated protocols: Pelco P, Pelco D, ED 2200, ED 2250
- Supplied PSU (primary: 230V~/50Hz/72VA, secondary: 24V~/3A) is suitable for indoor applications only
- Smoked glass dome EPTZ-001 is available at option

Model	EPTZ-500	EPTZ-1000	EPTZ-3000
Image sensor	6.35mm (¼") CCD	6.35mm (¼") CCD	6.35mm (¼") CCD
Number of pixels	hor. 752 x vert. 582	hor. 752 x vert. 582	hor. 752 x vert. 582
Resolution	470 lines	470 lines	520 lines (colour)
			570 lines (B/W)
Lens	4.1-73.8mm/1:1.4-3.0	4.1-73.8mm/1:1.4-3.0	3.3-99mm/1:1.6-3.2
Min. illumination	0.7 lux	0.7 lux	0.3 lux (colour)
			0.05 lux (B/W)
Admiss. ambient temp.	0-40 °C	-40 to +40 °C	-40 to +40 °C
Power supply	24V~/750mA/18W	24V~/3A/70W (with heating)	24V~/3A/70W (with heating)
Dimensions	ø 210mm x 220mm	ø 220mm x 310mm	ø 220mm x 310mm
Weight	3.2kg	5.6kg	5.6kg
Other features	ATW, AGC, BLC, FL, RS-485	ATW, AGC, BLC, RS-485	ATW, AGC, BLC, FL, RS-485

EDPS-24

Order No. 27.2090

IP66

PSU, 24V~, for outdoor applications

- Suitable e.g. for high-speed colour dome cameras
- Protected against short circuit and overload
- Mains connection and low-voltage connections via screw terminals

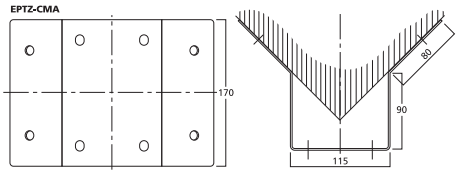
Model	EDPS-24
Input voltage	230V~/50Hz/90VA
Output voltage	24V~
Admiss. ambient temp.	-20 °C to +50 °C
Dimensions	180x180x90mm
Weight	1.7kg

EPTZ-CMA

Order No. 18.1830

Adapter for corner mounting

- Matching the wall bracket of EPTZ-1000 and EPTZ-3000
- For mounting the camera into corners
- Stainless steel

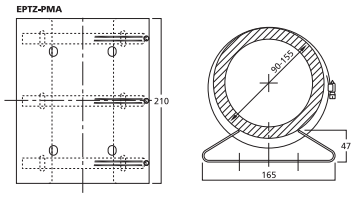


EPTZ-PMA

Order No. 18.1810

Adapter for pole mounting

- Suitable for tube diameter: ø 90-155mm
- Matching the wall bracket of EPTZ-1000 and EPTZ-3000
- Stainless steel



EPTZ-CPMA

Order No. 18.1820

Adapter for suspended mounting

- Matching EPTZ-1000 and EPTZ-3000
- To be mounted instead of the wall bracket
- Steel, powder-coated
- Length: 340mm

EPTZ-001

Order No. 18.1800

Smoked glass dome, for speed colour dome cameras.

- Suitable for EPTZ-500, EPTZ-1000 and EPTZ-3000
- Tinted version for an unobtrusive surveillance

VCC-9500INCP

Order No. 18.1190

COLOUR VARIO ZOOM SANYO

High-resolution colour dome camera, high-speed, with programmable area surveillance.

- Consisting of camera, dome camera housing and clear dome, suitable for indoor applications.

Matching camera brackets VA-80BW (wall bracket) or VA-80BP (ceiling bracket) and 24V PSU VCC-9400/24V are available at option. Please order these items together with this unit. For mounting the dome camera VCC 9500INCP by means of the brackets VA-80BW or VA-80BP, the mounting cover VA-80A is additionally required!

VCC-9600EXCP

Order No. 18.1210

IP66 COLOUR VARIO ZOOM D/N SANYO

High-resolution colour dome camera, high-speed, with programmable area surveillance and day/night function.

- Consisting of camera, dome camera housing and clear dome, suitable for outdoor applications
- Automatic B/W switching if light is too low

General specifications:

- Motor zoom lens (3.5-105mm)
- 30-fold optical zoom, 16-fold digital zoom
- 128 possible resets
- 360° pan (endless), -5° to 185° tilt with digital auto flip
- Pan speed: 0.1-120°/sec. (manual), 435°/sec. (preset)
- Auto pan function
- Privacy masking function, 24 zones max.
- On-screen menu control (OSD)
- Exposure control: automatic/manual
- RS-485 interface for triggering the camera via control panel EKB-500 or DCJ-2 (for this purpose, switch dome camera internally to Pelco D protocol)
- 8 alarm inputs, 2 alarm output
- Matching network card VA-80LAN is avaiable at option

Model	VCC-9500INCP	VCC-9600EXCP
Image sensor	6.35mm (¼") CCD	6.35mm (¼") CCD
Number of pixels	hor. 752 x vert. 582	hor. 752 x vert. 582
Resolution	520 lines	520 lines
Lens	3.5-105mm/1:1.4-3.7	3.5-105mm/1:1.4-3.7
Min. illumination	0.8 lux	0.8 lux (colour), 0.04 lux (B/W)
Admiss. ambient temp.	0-40 °C	-20 to +50 °C
Power supply	24V~/700mA	24V~/1.5A
Dimensions	ø 193mm x 193mm	ø 240mm x 270mm
Weight	2.4kg	5.1kg
Other features	ATW, AGC, BLC, RS-485	ATW, AGC, BLC, RS-485

Accessories for Dome Cameras, Control Panels

VA-80A

Order No. 18.1250

Mounting cover, for mounting the dome camera VCC-9500INCP to the brackets VA-80BW or VA-80BP.

VA-80BP

Order No. 18.1240

Bracket for outdoor camera housing

- Suitable for VCC-9500INCP, VCC-9600EXCP
- Ceiling suspension
- Length: 330mm

VA-80BW

Order No. 18.1260

Bracket for outdoor camera housing

- Suitable for VCC-9500INCP, VCC-9600EXCP
- Wall mounting
- Length: 240mm

EKB-500

Order No. 18.0590

Universal control panel, with joystick and jog shuttle for operating every digital video recorder of the DVR series.

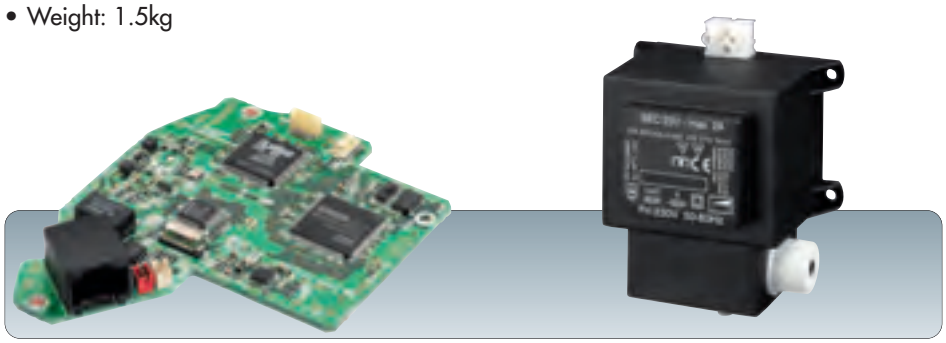
- Cable-connected operation of several units
- 3-axis joystick
- Jog shuttle for easy control of the digital recorders
- Pelco P protocol and Pelco D protocol
- LC display (20 characters x 2 lines)
- Multilingual menu (GB, D, F, I)
- Password protection
- Interfaces: 1 x RS-232, 2 x RS-485
- Power supply: 12V⎓/1.25A via supplied PSU 100-240V~/50-60Hz/10VA
- Dimensions: 360x95x200mm
- Weight: 1.5kg

DCJ-2

Order No. 18.0620

Universal control panel, for operating the digital video recorders of the DVR series and the video matrix SM-164A as well as dome cameras. It is also possible to operate one individual recorder by several control panels.

- Cable-connected operation of several units
- 3-axis joystick for controlling the dome cameras VCC-9500INCP, VCC-9600EXCP, TVCCD-350COL, TVCCD-350VCOL via Pelco D protocol
- Illuminated LC display, 20x4
- Multilingual menu (GB, D, F, I)
- 3 password levels
- Function keys for macros
- Interfaces:
  1 x RS-485 video control, RJ-45
  2 x RS-485 telemetry control (with independent protocols), RJ-45
  1 x RS-232 set-up control panel, 9-pin Sub-D
- Power supply: 12V⎓/1A via supplied PSU 100-240V~/50-60Hz/15VA
- Dimensions: 295x105x210mm
- Weight: 1.1kg



VA-80LAN

SANYO

Order No. 18.1220

Network card, for high-speed colour dome cameras VCC-9500INCP and VCC-9600EXCP.

- RJ45 connection
- Supplied with software CD

VCC-9400/24V

IP65

Order No. 19.9190

PSU, 24V~, e.g. for high-speed colour dome cameras.

- Primary: 230V~/50Hz/50VA
- Secondary: 24V~/2A
- Dimensions: 100x61x103mm
- Weight: 1.1kg

TVCCD-1630COL

Order No. 18.1710

COLOUR VARIO ZOOM D/N DNR

High-resolution colour camera with professional day/night function

- Sony Super HAD CCD chip
- Digital noise reduction (DNR) for saving hard disk capacities when recording with digital recorders
- 30-fold motor zoom (3.3-99mm)
- 10-fold digital zoom, can be switched off
- Integrated video motion detector with 4 programmable zones
- Digital picture stabilizer
- Privacy masking function
- Automatic focus adjustment, can be switched off
- High luminous sensitivity
- RS-485 interface for connecting optional control panels with Pelco D protocol, e.g. EKB-500 or DCJ-2
- Connection for external control voltage for adjusting zoom and focus
- Extensive features via on-screen menu control (OSD), to be configured
- Operating voltage: 24V~ and 12V⎓

VCCXZ-200P

Order No. 18.0750

IP66 COLOUR VARIO ZOOM D/N SANYO

High-resolution pan-focus colour camera, with day and night function.

- Suitable for outdoor applications
- Ready fitted in an outdoor housing with sunshield and camera support
- Automatic B/W switching if light is too low
- Automatic motion detection with zoom-in function
- Pan-focus lens (2.8-7.3mm) for high depth of focus
- 2.6-fold optical zoom (motorized)
- On-screen menu control (OSD)
- Backlight compensation
- Automatic electronic shutter
- Privacy masking function, 4 zones max.
- Programming possible via control panel DCJ-2 or remote control VAC-70
- Matching network card VA-20LAN is available at option

VA-20LAN

Order No. 18.0760

SANYO

Network card, for pan-focus colour camera VCCXZ-200P.

- RJ45 connection
- Supplied with software CD

Model	TVCCD-1630COL	VCCXZ-200P
Image sensor	6.35mm (¼") CCD	6.35mm (¼") CCD
Number of pixels	hor. 752 x vert. 582	hor. 752 x vert. 582
Resolution	520 lines (colour)	520 lines
	570 lines (B/W)	
Lens	3.3-99mm/1:1.6-3.2	2.8-7.3mm/1:1.9
Min. illumination	0.6 lux (colour)	1.2 lux (colour),
	0.1 lux (B/W)	0.06 lux (B/W)
Admiss. ambient temp.	0-40 °C	-10 °C to +50 °C
Power supply	12V⎓/500mA or 24V~/250mA	12V⎓/380mA or
		24V~/50Hz/3.5VA
Dimensions	65x72x143mm	75x85x185mm (camera only)
Weight	520g	1.8kg
Other features	AGC, BLC, DNR, OSD	AGC, ATW, AWC, MWB, BLC

VCCZM-600P

Order No. 18.1870

COLOUR · VARIO ZOOM · D/N · UVV-Kassen zertifiziert · SANYO

High-resolution colour camera with professional day/night function

VCCXZ-600P

Order No. 18.1860

IP66 · COLOUR · VARIO ZOOM · D/N · UVV-Kassen zertifiziert · SANYO

High-resolution colour camera with professional day/night function

- Ready fitted in an outdoor housing
- Incl. sunshield and camera bracket

General specifications:

- Automatic B/W switching if light is too low (day/night function with change of IR suppression filter)
- Automatic motion detection with zoom-in function
- Motor zoom lens (3.5-105mm)
- 30-fold optical zoom, 16-fold digital zoom
- Automatic focus adjustment
- Backlight compensation
- Automatic electronic shutter
- Privacy masking function, 4 zones max.
- On-screen menu control (OSD)
- Adjustments possible via remote control VAC-70
- RS-485 interface for triggering the camera via control panel EKB-500 or DJC-2 (for this purpose, switch camera internally to Pelco D protocol)
- 2 alarm inputs, 1 alarm output
- 2-wire video output, matching the active receiver from e.g. TW-220SET
- Approved in accordance with the German accident prevention regulations

VCCZM-500P

Order No. 18.2020

COLOUR · UVV-Kassen zertifiziert · VARIO ZOOM · SANYO NEW.

High-resolution colour camera

- Automatic motion detection with zoom-in function
- Motor zoom lens (3.5-105mm)
- 30-fold optical zoom, 16-fold digital zoom
- On-screen menu control (OSD)
- Automatic focus adjustment
- Backlight compensation
- Automatic electronic shutter
- Privacy masking function, 4 zones max.
- Adjustments possible via remote control VAC-70 or RS-485 interface
- 2 alarm inputs, 1 alarm output
- Approved in accordance with the German accident prevention regulations

VAC-70

Order No. 19.9170

SANYO

Control module and remote control, for colour cameras by SANYO. Allows the adjustment of all menu functions of the on-screen menu via the coaxial cable. After finishing the remote adjustments, the unit should be disconnected to enable a better picture quality.

- Video output: 1 x BNC
- Camera input: 1 x BNC
- Power supply: 2 x 1.5V battery AA size (not supplied, please order matching batteries, e.g. LR-6 together with this unit) or external power source 3V⎓
- Dimensions: 80x148x38mm
- Weight: 230g

Model	VCCZM-600P	VCCXZ-600P	VCCZM-500P
Image sensor	6.35mm (¼") CCD	6.35mm (¼") CCD	6.35mm (¼") CCD
Number of pixels	hor. 752 x vert. 582	hor. 752 x vert. 582	hor. 752 x vert. 582
Resolution	540 lines	540 lines	540 lines
Lens	3.5-105mm/1:1.4-3.7	3.5-105mm/1:1.4-3.7	3.5-105mm/1:1.4
Min. illumination	0.8 lux (colour), 0.04 lux (B/W)	0.8 lux (colour), 0.04 lux (B/W)	0.8 lux
Admiss. ambient temp.	0-40 °C	-10 °C to +50 °C	0-40 °C
Power supply	12-15V⎓/380mA or 24V~/50Hz/5VA	12-15V⎓/380mA or 24V~/50Hz/5VA	12-15V⎓/380mA or 24V~/50Hz/5VA
Dimensions	56x64x150mm	141x172x400mm	56x64x150mm
Weight	0.54kg	1.8kg	400g
Other features	ATW, AWC, MWB, BLC, AES, RS-485	IP66, ATW, AWG, BLC, RS-485	ATW, AWC, MWB, BLC, AES, RS-485

VCCP-7575P

COLOUR VARIO ZOOM SANYO

Order No. 18.0780

High-resolution pan-focus colour dome camera

- Suitable for indoor applications
- Automatic motion detection with zoom-in function
- Pan-focus lens (2.8-7.3mm) for high depth of focus
- 2.6-fold optical zoom (motorized)
- 330° pan, 90° tilt
- On-screen menu control (OSD)
- Backlight compensation
- Automatic electronic shutter
- Privacy masking function, 4 zones max.
- Programming possible via remote control VAC-70
- Matching network card VA-50LAN is available at option

VDCDP-7585P

IP66 COLOUR VARIO ZOOM D/N SANYO

Order No. 18.0740

High-resolution pan-focus colour dome camera, with day and night function.

- Suitable for outdoor applications
- Outdoor housing protected against vandalism
- Automatic B/W switching if light is too low
- Automatic motion detection with zoom-in function
- Pan-focus lens (2.8-7.3mm) for high depth of focus
- 2.6-fold optical zoom (motorized)
- 330° pan, 90° tilt
- On-screen menu control (OSD)
- Backlight compensation
- Automatic electronic shutter
- Privacy masking function, 4 zones max.
- Programming possible via remote control VAC-70
- Matching network card VA-50LAN is available at option

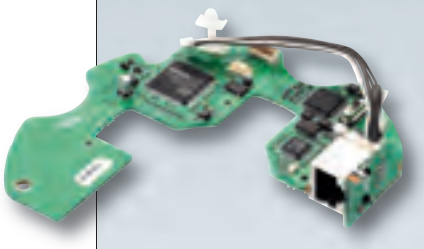
VA-50LAN

SANYO

Order No. 18.0770

Network card, for pan-focus colour dome cameras VCCP-7575P and VDCDP-7585P.

- RJ45 connection
- Supplied with software CD



Model	VCCP-7575P	VDCDP-7585P
Image sensor	6.35mm (¼") CCD	6.35mm (¼") CCD
Number of pixels	hor. 752 x vert. 582	hor. 752 x vert. 582
Resolution	520 lines	520 lines
Lens	2.8-7.3mm/1:1.9	2.8-7.3mm/1:1.9
Min. illumination	1.9 lux	1.2 lux (colour), 0.06 lux (B/W)
Admiss. ambient temp.	-10 °C to +50 °C	-10 °C to +50 °C
Power supply	12V⎓/380mA or 24V~/50Hz/3.5VA	12V⎓/380mA or 24V~/50Hz/3.5VA
Dimensions	ø 151mm x 104mm	ø 162mm x 115mm
Weight	0.6kg	1.5kg
Other features	AGC, ATW, AWC, MWB, BLC	AGC, ATW, AWC, MWB, BLC

TVCCD-350COL

COLOUR VARIO ZOOM

Order No. 19.9720

Controllable pan/tilt colour dome camera, with programmable area surveillance.

- High-resolution
- Integrated pan/tilt head, hor. 350° (93°/sec.), vert. 85° (93°/sec.)
- Zoom lens (4-9mm)
- 3-fold digital zoom
- 64 possible presets
- Automatic pan function
- RS-485 interface for connecting remote control RMA-350 or control panel DCJ-2, both available at option
- 60cm connection cable for power supply, remote control, and video (BNC)
- Pelco D protocol

TVCCD-350VCOL

IP66 COLOUR VARIO ZOOM

Order No. 19.0710

Controllable pan/tilt colour dome camera, with programmable area surveillance.

- Outdoor housing protected against vandalism
- High-resolution
- Integrated pan/tilt head, hor. 350° (93°/sec.), vert. 85° (93°/sec.)
- Zoom lens (4-9mm)
- 3-fold digital zoom
- 64 possible presets
- Automatic pan function
- RS-485 interface for connecting remote control RMA-350 or control panel DCJ-2, both available at option
- Power supply and video via screw terminals
- Pelco D protocol

Model	TVCCD-350COL	TVCCD-350VCOL
Image sensor	8.5mm (⅓") CCD	8.5mm (⅓") CCD
Number of pixels	hor. 752 x vert. 582	hor. 752 x vert. 582
Resolution	470 lines	470 lines
Lens	4-9mm/1:1.2	4-9mm/1:1.2
Min. illumination	1 lux	1 lux
Admiss. ambient temp.	0-40 °C	-10 °C to +50 °C
Power supply	12V⎓/500mA	12V⎓/500mA
Dimensions	ø 120mm x 105mm	ø 140mm x 130mm
Weight	370g	1.4kg
Other features	RS-485, AGC, BLC	RS-485, AGC, BLC

RMA-350

Order No. 19.9730

Cable remote control, for pan/tilt CCTV colour dome cameras TVCCD-350COL and TVCCD-350VCOL.

- Up to 99 cameras can be connected
- Functions pan, tilt and digital zoom can be controlled
- Up to 64 presets can be programmed, sequentially or randomly selected
- 80cm helix connection cable
- Power supply: 12V⎓/100mA
- Dimensions: 140x27x95mm
- RS-485 interface, max. cable length: 1,200m

TVCCD-180HCOL

IP67 COLOUR D/N

Order No. 19.9780

High-resolution colour camera

- Fixed focus lens (3.6mm)

TVCCD-180COL

IP57 COLOUR D/N

Order No. 19.7650

Colour camera

- Fixed focus lens (6mm)

General specifications:

- Suitable for infrared
- 12 infrared LEDs for automatic adjustment of the luminous intensity (IR operating range: 10m max.)
- Automatic switching from colour operation to B/W operation, dep. on illumination
- Automatic electronic shutter 1/50 to 1/100,000 second
- Automatic white balance
- Incl. sunshield, camera bracket and 1m connection cable for power supply and video (BNC)

TVCCD-147COL

IP66 COLOUR VARIO ZOOM

Order No. 18.1630

High-resolution miniature colour camera

- Zoom lens (4-9mm)
- External lens adjustment
- Automatic electronic shutter
- Incl. sunshield and camera bracket
- 90cm connection cable for power supply and video (BNC)

Model	TVCCD-180HCOL	TVCCD-180COL	TVCCD-147COL
Image sensor	8.5mm (⅓") CCD	8.5mm (⅓") CCD	8.5mm (⅓") CCD
Number of pixels	hor. 752 x vert. 582	hor. 512 x vert. 582	hor. 752 x vert. 582
Resolution	480 lines	420 lines	480 lines
Lens	3.6mm/1:2	6.0mm/1:1.8	4-9mm/1:1.6
Min. illumination	1 lux	1 lux	0.5 lux
Admiss. ambient temp.	0-40 °C	0-40 °C	0-40 °C
Power supply	12V⎓/max. 240mA	12V⎓/max. 260mA	12V⎓/150mA
Dimensions	65x60x120mm	65x60x120mm	ø 37mm x 111mm
Weight	350g	355g	260g
Other features	IP57, suit. for IR, AGC	IP57, suit. for IR, AGC	IP67, AGC

TVCCD-125COL

Order No. 18.0980

COLOUR

Miniature colour camera

- Fixed focus lens (3.6mm)
- Automatic electronic shutter
- Backlight compensation
- Incl. camera bracket for wall mounting and ceiling suspension and mounting plate for direct installation of the camera
- 30cm connection cable for power supply and video (BNC)

TVCCD-125PCOL

Order No. 18.0990

COLOUR

Miniature colour camera

- Fixed focus pinhole lens (3.7mm)
- Automatic electronic shutter
- Backlight compensation
- Incl. camera bracket for wall mounting and ceiling suspension and mounting plate for direct installation of the camera
- 30cm connection cable for power supply and video (BNC)

TVCCD-140IR

Order No. 19.3530

IP68

B/W camera

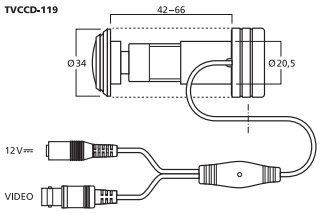
- Fixed focus lens (3.6mm)
- 6 IR LEDs as light source
- Brass camera housing
- Automatic electronic shutter
- Incl. sunshield and camera bracket
- 175cm connection cable for power supply and video (BNC)

TVCCD-119

Order No. 19.0280

B/W peephole camera

- Fixed focus wide angle lens (1.78mm)
- Automatic electronic shutter 1/50 to 1/100,000 second
- 1.8m connection cable for video output and power supply



Model	TVCCD-125COL	TVCCD-125PCOL	TVCCD-140IR	TVCCD-119
Image sensor	6.35mm (¼") CCD	6.35mm (¼") CCD	8.5mm (⅓") CCD	8.5mm (⅓") CCD
Number of pixels	512x582	512x582	290,000	hor. 500 x vert. 582
Resolution	420 lines	420 lines	400 lines	400 lines
Lens	3.6mm/1:2.0	3.7mm/1:2.0	3.6mm	1.78mm/1:1.2
Min. illumination	0.05 lux	0.05 lux	0.1 lux	0.01 lux
Admiss. ambient temp.	0-40 °C	0-40 °C	0-40 °C	0-40 °C
Power supply	12V⎓/200mA	12V⎓/200mA	12V⎓/150mA	12V⎓/110mA
Dimensions	ø 22mm x 43mm	ø 22mm x 43mm	ø 35mm x 53mm	ø 34mm x 63mm
Weight	60g	60g	200g	90g
Other features	AGC, ATW, BLC	AGC, ATW, BLC	IR LED, AGC	suit. for IR, AGC

TVCCD-120

Order No. 19.2490

IP44

B/W camera

- Fixed focus lens (3.6mm)
- Automatic electronic shutter 1/50 to 1/32,000 second
- 1.5m connection cable for video output and power supply

TVCCD-118

Order No. 19.0270

IP44

Miniature B/W camera

- Fixed focus lens (3.6mm)
- Automatic electronic shutter 1/50 to 1/100,000 second
- 1.8m connection cable for video output and power supply

Model	TVCCD-120	TVCCD-118
Image sensor	8.5mm (⅓") CCD	8.5mm (⅓") CCD
Number of pixels	hor. 512 x vert. 582	hor. 512 x vert. 582
Resolution	380 lines	400 lines
Lens	3.6mm/1:2.0	3.6mm/1:2.0
Min. illumination	0.4 lux	0.1 lux
Admiss. ambient temp.	0-40 °C	-10 °C to +50 °C
Power supply	12V⎓/110mA	12V⎓/110mA
Dimensions	ø 23mm x 53mm	ø 18mm x 55mm
Weight	54g	40g
Other features	suit. for IR, AGC	suit. for IR, AGC

TVSET-550

Order No. 18.1890

NEW.

Surveillance system, consisting of B/W monitor CDM-550 and two miniature B/W cameras TVCCD-550.

B/W monitor CDM-550

- 2 video inputs with automatic or manual switching
- Built-in speaker
- Controls for brightness, contrast, vertical picture rolling, volume and dwell time
- 10V power supply for up to 2 cameras, max. 250mA
- Power supply via supplied plug-in PSU

B/W camera TVCCD-550

- 6 infrared LEDs for automatic adjustment of the luminous intensity
- Fixed focus lens (3.6mm)
- Audio transmission via built-in microphone
- Automatic electronic shutter
- Incl. camera bracket and 18m system cable for power supply, audio (RCA) and video (BNC)

For further specifications, please refer to CDM-550 and TVCCD-550.

TVCCD-550

NEW.

Order No. 18.1910

Miniature B/W camera in CMOS technology

- 6 infrared LEDs for automatic adjustment of the luminous intensity
- Fixed focus lens (3.6mm)
- Audio transmission via built-in microphone
- Automatic electronic shutter
- Incl. camera bracket and 18m system cable for power supply, audio (RCA), and video (BNC)

Model	TVCCD-550
Image sensor	6.35mm (¼") CMOS
Number of pixels	hor. 510 x vert. 492
Resolution	380 lines
Lens	3.6mm/1:2.0
Min. illumination	0.5 lux (w/o IR illumination)
Admiss. ambient temp.	0-40 °C
Power supply	9-12V⎓/160mA
Dimensions	65x60x120mm
Weight	250g
Other features	suit. for IR, AGC

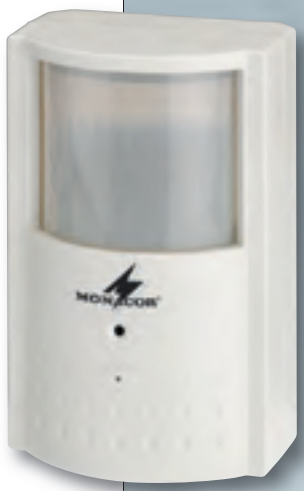
TVCCD-92APCOL

COLOUR

Order No. 19.9820

Colour camera with motion detector and audio transmission

- Two relays for alarm control and light control
- Pinhole lens (3.7mm)
- CCD technology, AGC
- Built-in microphone
- Automatic electronic shutter
- PIR detection zone: 10m, hor. 65°, vert. 50°
- Wall bracket
- 30cm connection cable for power supply, audio (RCA) and video (BNC)



TVCCD-97COL

COLOUR NEW.

Order No. 18.1920

Colour camera in a smoke alarm housing

- Fixed focus lens (3.6mm)
- Automatic electronic shutter 1/50 to 1/100,000 second
- Suitable for an inconspicuous surveillance
- 20cm connection cable for power supply and video (BNC)

Model	TVCCD-92APCOL	TVCCD-97COL
Image sensor	8.5mm (⅓") CCD	8.5mm (⅓") CCD
Number of pixels	hor. 512 x vert. 582	hor. 500 x vert. 582
Resolution	350 lines	400 lines
Lens	3.7mm/1:2.0	3.6mm/1:2.0
Min. illumination	0.5 lux	0.05 lux
Admiss. ambient temp.	0-40 °C	0-40 °C
Power supply	12V⎓/160mA	12V⎓/100mA
Dimensions	70x110x50mm	ø 130mm x 60mm
Weight	155g	160g
Other features	Alarm contacts: NC/NO, max. 0.5A/30V⎓ and NO, max. 5A/230V~	AGC, ATW

TVCCD-34COL

Order No. 19.9340

COLOUR

High-resolution colour camera

- Fixed focus lens (3.6mm)
- Automatic electronic shutter
- Automatic white balance, backlight compensation
- Movable mounting bracket
- 60cm connection cable for power supply and video (BNC)

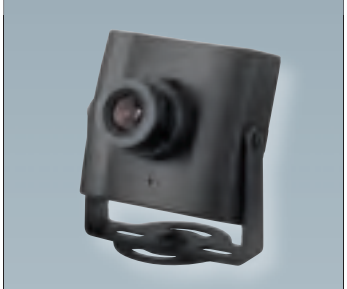
TVCCD-28COL

Order No. 19.0120

COLOUR

Colour camera

- Fixed focus lens (3.6mm)
- Automatic electronic shutter
- Automatic white balance
- Built-in microphone
- Movable mounting bracket
- 30cm connection cable for power supply and video (BNC)



TVCCD-28PCOL

Order No. 19.0130

COLOUR

Colour camera

- Fixed focus pinhole lens (3.7mm)
- Automatic electronic shutter
- Automatic white balance
- Built-in microphone
- Movable mounting bracket
- 30cm connection cable for power supply and video (BNC)

TVCCD-32ACOL

Order No. 19.6760

COLOUR

Colour camera in CMOS technology

- Fixed focus lens (8mm)
- Sound transmission via built-in microphone
- Automatic electronic shutter
- Movable mounting bracket
- Connection via supplied 1m adapter cable

Model	TVCCD-34COL	TVCCD-28COL	TVCCD-28PCOL	TVCCD-32ACOL
Image sensor	8.5mm (⅓") CCD	8.5mm (⅓") CCD	8.5mm (⅓") CCD	8.5mm (⅓") CMOS
Number of pixels	hor. 752 x vert. 582	hor. 512 x vert. 582	hor. 512 x vert. 581	270,000
Resolution	470 lines	350 lines	350 lines	300 lines
Lens	3.6mm/1:2.0	3.6mm/1:2.0	3.7mm/1:2.0	8mm/1:2.0
Min. illumination	1 lux	0.5 lux	0.5 lux	7 lux
Admiss. ambient temp.	0-40 °C	0-40 °C	0-40 °C	-10 °C to +50 °C
Power supply	12V⎓/100mA	12V⎓/90mA	12V⎓/90mA	12V⎓/30mA
Dimensions	35x35x28mm	36x36x16mm	36x36x14mm	31x31x28mm
Weight	65g	53g	53g	46g
Other features	AGC	audio, AGC, AWB, AES	audio, AGC, AWB, AES	AGC

TVCCD-22MCOL

COLOUR

Order No. 19.6220

Colour camera module

- Fixed focus lens (3.7mm)
- Automatic electronic shutter
- Automatic white balance, backlight compensation
- Optionally mirror-inverted display
- Power supply and video output via wire connections

TVCCD-32MCOL

COLOUR

Order No. 19.6230

Colour camera module

- Fixed focus lens (3.7mm)
- Automatic electronic shutter
- Automatic and manual white balance
- Optionally mirror-inverted display
- 2-fold digital zoom
- Backlight compensation
- Power supply and video output via wire connections

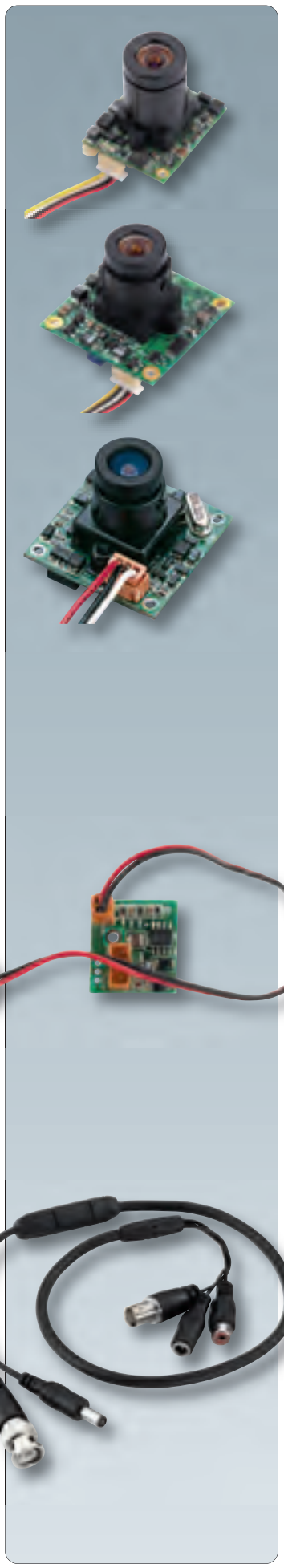
TVCCD-30M

Order No. 19.2500

B/W camera module

- Fixed focus lens (3.7mm)
- Automatic electronic shutter
- Video output and power supply via wire connections

Model	TVCCD-22MCOL	TVCCD-32MCOL	TVCCD-30M
Image sensor	6.4mm (¼") CCD	6.4mm (¼") CCD	8.5mm (⅓") CCD
Number of pixels	hor. 542 x vert. 586	hor. 537 x vert. 597	hor. 500 x vert. 582
Resolution	350 lines	380 lines	380 lines
Lens	3.7mm/1:2.0	3.7mm/1:2.0	3.7mm/1:2.0
Min. illumination	3.0 lux	0.5 lux	0.4 lux
Admiss. ambient temp.	0-40 °C	0-40 °C	0-40 °C
Power supply	12V⎓/65mA	12V⎓/80mA	12V⎓/110mA
Dimensions	26x22x30mm	32x32x32mm	32x32x28mm
Weight	12g	15g	27g
Other features	AGC	AGC	suit. for IR, AGC



ECM-30A

Order No. 19.8940

Microphone module, for subsequent audio upgrading of video surveillance systems.

- Audio amplifier and electret microphone cartridge (ø 10mm x 7mm) of cardioid characteristic
- Audio output and power supply via wire connections

Model	ECM-30A
Frequency range	300-20,000Hz
Sensitivity	7.8mV/Pa/1kHz
Impedance	600Ω
S/N ratio	> 45dB
Admiss. ambient temp.	0-40 °C
Power supply	12V⎓
Dimensions	21x20mm
Weight	2g
Connections	wires, no connectors

VB-100MIC

Order No. 18.1000

Adapter cable with integrated microphone, for subsequently upgrading cameras without audio function.

- 60cm adapter cable for power supply, video (BNC), with audio output (RCA)
- Power supply: 12V⎓/10mA via power supply of the camera

TVD-10

Order No. 19.2140

TVD-20

Order No. 19.2150

Camera dummies, with white metal cover.

- Flashing LED, 2 x 1.5V battery C size required
- With dummy connection cable and labels "video surveillance" in German and English
- TVD-10: 60x60x190mm, 850g
- TVD-20: 95x90x280mm, 1.3kg
- Supplied without batteries

TVD-30

Order No. 19.5600

Camera dummy, with camera bracket.

- Flashing LED, 2 x 1.5V battery AA size required
- With dummy connection cable and labels "video surveillance" in German and English
- Supplied without batteries

TVD-40

Order No. 18.8170

Mini dome camera dummy

- Flashing LED, 2 x 1.5V battery AAA size required
- Dimensions: ø 87mm x 60mm
- Supplied without batteries

TVD-50

Order No. 18.8180

Camera dummy, for outdoor applications.

- Aluminium outdoor housing with sunshield and camera bracket
- Flashing LED, 2 x 1.5V battery AA size required
- With dummy connection cable
- Dimensions: ø 85mm x 220mm
- Supplied without batteries

Lenses

Lenses promote the efficiency of a video surveil-lance system to a large extent.

Lenses are an indispensable part of a surveillance system, no matter if the lens is already connected to the camera, as it is the case with almost all compact cameras and camera modules, or attached to the camera as an interchangeable lens.

To make it clear from the start:
A CAMERA WITHOUT A LENS IS USELESS

The right selection of the lens defines the visible picture detail to a large extent. Although the necessary attention is not always paid, the selection of the suitable lens is at least as important as the selection of the suitable camera type.

Different types of lenses are available for versatile applications. It is worth having a look at the specifications when choosing a lens in order to select the right one.

Features of lenses

Focal length
The focal length is always stated in mm. The visible picture detail is defined by the focal length.

The value does not indicate the quality of the lens. Small focal lengths indicate a large visible picture detail. Therefore, lenses with a focal length of 2.5mm are wide angle lenses which allow to view a large area; details are shown very small. On the other hand there are lenses with large focal lengths, like e.g. 50mm telelenses which only show small picture details, but persons and number plates are clearly identified, even from a distance of 10m.

When changing the focal length, the range which is visible on the monitor changes in proportion to the focal length of the lens. Sounds complicated, but it is really quite simple. By doubling the focal length, the monitoring range is halved, but everything is displayed twice as large. Details can thus be better recognised.

Inversely, by halving the focal length, the visible range on the monitor is doubled. Details are displayed smaller.

The respective picture detail can be determined and the matching lens can be selected by means of the focal length table.

Focus
A point in front of the camera can be adjusted via the focus adjustment at the lens, allowing a clear reproduction on the monitor.

At zoom lenses, i.e. lenses with adjustable focal length (e.g. the VZLCS series), the focus adjustment has to be readjusted after every change of the focal length.

Iris and F-stop
The quantity of light reaching the chip via the lens is controlled with the iris, just like the iris of our eyes is able to adapt to great fluctuations of brightness.

The F-stop describes the smallest possible iris number. The F-stop is shown e.g. as 1:1.4. The smaller the second value is, the higher the luminous intensity of the lens. Even small changes of the value already have got a large influence on the quantity of light which reaches the image sensor.

If a lens is used with an F-stop of 1:1.8 instead of 1:1.4, twice the quantity of light is required.

Of course, a lens of lower luminous intensity is available at a more favourable price than a lens of high luminous intensity.

Nevertheless, it makes more sense to attach a high-quality lens to a basic camera, than to plan a high-sensitive camera with a lens of low luminous intensity.

Concerning the iris adjustment, the lenses can be subdivided.

Lenses with fixed iris
These are the most basic lenses. No facility for iris adjustment is available. The lenses for the camera modules as well as the lenses of the VSL series with C mount thread are included in this class. If these lenses are used, the camera adjustments (ES, AGC, BLC) will control the image sensor in such a way, that a perfect picture is provided.

Lenses with fixed iris should only be applied for basic surveillance applications.

Lenses with manual iris
The iris is adjusted manually via a ring which is attached at these lenses. When mounting, the iris has once to be adjusted at a place where it is used. If the lighting conditions change greatly, the iris at the camera must be readjusted.

These lenses are suitable for all areas with a relatively constant illumination. These include e.g. all closed rooms which are illuminated with artificial light. The classic store surveillance is part of this application profile.

Please note: the adjustment to great fluctuations of brightness is only possible directly at the lens.

This type is generally marked with the letter "M" at the end of the item number.

Lenses with automatically controlled iris
With these lenses, the iris is adjusted electromechanically. The control of these lenses is done via a cable at the camera from a particular connection of the camera.
Lenses with automatically controlled iris can also be used with great fluctuations of the lighting conditions, therefore they are mainly used for outside surveillance.

Two different kinds of controls are available on the market at present. These are distinguished by the position of the control electronics.

Lenses with video signal controlled iris, also called autoiris or AI.

This is the older version. With these lenses the evaluating electronics is installed in the lens. Therefore, adjustments are available in order to set the control response of these lenses.

ALC = setting, whether peak light (P) or brightness areas (A) are to be controlled

Level = brightness level

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The lens is connected via a short cable. Manufacturers have not been able to agree on uniform plugs or plug configurations for these types of lenses. Therefore, these lenses are supplied with bare wires. The required plug is supplied with the respective camera and must be soldered to the cable prior to mounting.

This type is generally marked with a letter "A" at the end of the item number.

Lenses with DC-controlled iris
This is the latest kind of iris control. These lenses contain the setting mechanism only rather than control electronics, because this is already installed in current cameras and thus ensures a perfect adjustment with the control mechanisms of the camera like AGC, ES, BLC, etc.

3 reasons for DC-controlled lenses
– Electronic. Perfect adjustment to the camera controls
– Practical. Due to uniform plugs and plug configurations already fitted with plug connector, thus quicker assembly
– Economical. A more favourable price due to removal of the electronics

This type is generally marked with a letter "D" at the end of item number.

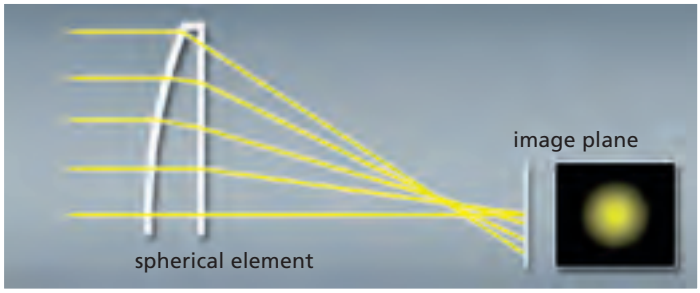
The trend clearly goes towards DC-controlled lenses at new video surveillance systems. When selecting iris-controlled lenses, attention has to be paid to the provision of corresponding outputs at the camera. The lenses with the letters "A" and "D" are incompatible with one another.

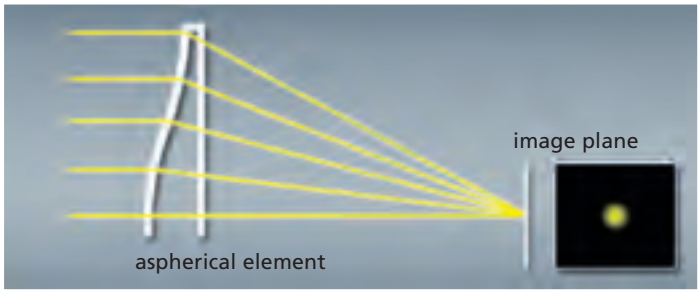
Zoom lenses
The second trend which can be noticed is the increased application of lenses with adjustable focal length. These lenses offer a high degree of flexibility because the exact focal length can be determined directly at the position of installation.

Zoom lenses are available in different zoom ranges. The main ranges are:
– Range 3.5-8mm for wide angle range and close range. Applications in a shop area or outside area are typical of these lenses. Main application is the close range of 1-3m or the surveillance of complete areas. The aim is to display a picture detail as large as possible.
– Range 5-50mm (up to 80mm) for the tele range. This is the typical lens for petrol stations. Focal lengths of 30-50mm or more are required if number plates or persons standing at a gate are to be identified at a distance of 10-20m. With these lenses, the visual range is reduced to such an extent that details are displayed as large as possible on the monitor.

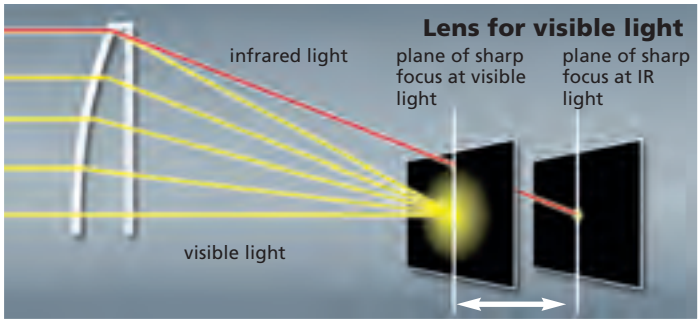
Zoom lenses have become very interesting concerning the price, not least due to accepting the fact that each adjustment of the focal length means a readjustment of the focus each time. This adjustment has to be carried out once at the time of installation, which is not in the least bit annoying.
Zoom lenses with controlled iris are also available, of course.

Aspherical lenses
Lenses with a special cut. A higher luminous beam concentration is possible due to the superior manufacturing. As a result, a higher luminous efficiency and a clearer picture can be obtained.
This lens is suitable for high-quality video surveillance applications.

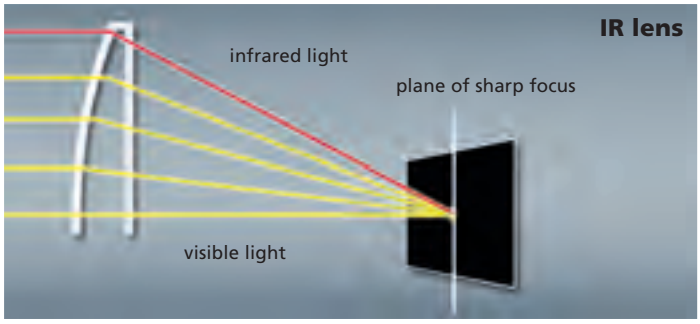




IR-corrected lenses
The application of infrared light is becoming more and more popular. Unfortunately, the infrared light has other optical characteristics than visible light. The concentration is different in the lenses. This results in a clear picture at daylight, but the picture is blurred at infrared light. This fact could be accepted or as a compromise, an adjustment could be found in between. This is no longer necessary with infrared-corrected lenses. These lenses are extensively coated in order to have an identical response afterwards at both visible and infrared light.


Lens for visible light
infrared light
plane of sharp focus at visible light
plane of sharp focus at IR light
visible light

Lack of focus due to different planes of sharp focus.
This difference is rectified at the IR lens.



IR light and visible light are focussed in the same plane.

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VML-25

Order No. 19.1940

CCTV lens for camera modules

- Focal length: 2.5mm

VML-36

Order No. 19.1950

CCTV lens for camera modules

- Focal length: 3.6mm

VML-60

Order No. 19.1960

CCTV lens for camera modules

- Focal length: 6mm

VML-80

Order No. 19.1970

CCTV lens for camera modules

- Focal length: 8mm

VML-120

Order No. 19.1980

CCTV lens for camera modules

- Focal length: 12mm

VML-160

Order No. 19.2010

CCTV lens for camera modules

- Focal length: 16mm

VML-250

Order No. 19.2020

CCTV lens for camera modules

- Focal length: 25mm

VML-500

Order No. 19.2090

CCTV lens for camera modules

- Focal length: 50mm

Model	VML-25	VML-36	VML-60	VML-80	VML-120
Focal length	2.5mm	3.6mm	6mm	8mm	12mm
Iris adjustment	fixed	fixed	fixed	fixed	fixed
Aperture	1:2.0	1:2.0	1:2.0	1:2.0	1:2.2
Shortest distance	-	-	-	-	-
Mounting thread	12mm	12mm	12mm	12mm	12mm
Dimensions	ø 15mm x 18.7mm	ø 14mm x 15.2mm	ø 14mm x 13.7mm	ø 14mm x 14.4mm	ø 14mm x 11.4mm
Weight	6g	5.5g	4.5g	4.5g	3g

Model	VML-160	VML-250	VML-500
Focal length	16mm	25mm	50mm
Iris adjustment	fixed	fixed	fixed
Aperture	1:2.5	1:2.5	1:2.5
Shortest distance	-	-	-
Mounting thread	12mm	12mm	12mm
Dimensions	ø 14mm x 14.4mm	ø 25mm x 22mm	ø 27mm x 57mm
Weight	4.5g	17g	38g

VZLCS-550M

Order No. 18.0520

CCTV lens, with CS mount thread and manual iris adjustment.

- Focal length: 5-50mm
- Focus fine adjustment
- For cameras with 8.5mm (⅓") CCD chip

VZLCS-1634D

Order No. 18.0530

CCTV lens, with CS mount thread.

- Focal length: 1.6-3.4mm
- DC-controlled iris
- Focus fine adjustment
- For cameras with 8.5mm (⅓") CCD chip
- Already fitted with 4-pole connector plug

VZLCS-1014D

Order No. 19.9480

CCTV lens, with CS mount thread.

- Focal length: 2.8-10mm
- DC-controlled iris
- Focus fine adjustment
- For cameras with 8.5mm (⅓") CCD chip
- Already fitted with 4-pole connector plug

VZLCS-814D

Order No. 19.8860

CCTV lens, with CS mount thread.

- Focal length: 3.5-8mm
- DC-controlled iris
- Focus fine adjustment
- For cameras with 8.5mm (⅓") CCD chip
- Already fitted with 4-pole connector plug

VZLCS-5018D

Order No. 19.8870

CCTV lens, with CS mount thread

- DC-controlled iris.
- Focal length: 5-50mm

VM-300

Order No. 18.0720

Optical angle finder

The ideal planning tool for CCTV systems. The picture detail is determined by looking through the VM-300 and turning the ring; the scale then shows the focal length which is required. At the same time, the picture detail which will be visible can be shown to the customer.

- Scale suitable for all ¼", ⅓", ½", ⅔", and 1" cameras
- Dimensions: ø 51mm x 112mm
- Supplied in a bag

Model	VZLCS-550M	VZLCS-1634D	VZLCS-1014D	VZLCS-814D	VZLCS-5018D
Focal length	5-50mm	1.6-3.4mm	2.8-10mm	3.5-8mm	5-50mm
Iris adjustment	manual	automatic	automatic	automatic	automatic
Aperture	1:1.4	1:1.4	1:1.4	1:1.4	1:1.8
Shortest distance	0.5m	0.2m	0.2m	0.2m	0.5m
Mounting thread	CS	CS	CS	CS	CS
Dimensions	ø 41mm x 65mm	ø 40mm x 56mm	ø 39mm x 59mm	ø 33mm x 50mm	ø 44mm x 65mm
Weight	132g	99g	64g	55g	135g

VG-1040ASIR

TAMRON

Order No. 19.3080

CCTV lens, with CS mount thread and DC-controlled iris.
- Focal length: 10-40mm

VG-2811ASIR

TAMRON

Order No. 18.0710

CCTV lens, with CS mount thread and DC-controlled iris.
- Focal length: 2.8-11mm

VG-308ASIR

TAMRON

Order No. 19.3470

CCTV lens, with CS mount thread and DC-controlled lens.
- Focal length. 3-8mm

General specifications:
- Especially suitable for high-resolution cameras with up to 540 lines
- IR correction (up to 1,000nm), thus especially suitable for the use with IR floodlights
- Ideally suited for cameras with automatic day/night switching
- Higher marginal sharpness and better focussing due to aspherical cut
- Focus fine adjustment
- For 8.5mm (⅓") cameras

All the lenses from TAMRON are especially suitable for high-resolution cameras with up to 540 lines. In addition, the lenses are equipped with an ND filter (neutral-density filter) to increase the picture quality in case of very bright ambient light.

Model	VG-1040ASIR	VG-2811ASIR	VG-308ASIR
Focal length	10-40mm	2.8-11mm	3-8mm
Iris adjustment	automatic	automatic	automatic
Aperture	1:1.4	1:1.4	1:1.0
Shortest distance	0.5m	0.3m	0.2m
Mounting thread	CS	CS	CS
Dimensions	ø 43mm x 67mm	ø 40mm x 58mm	ø 33mm x 40mm
Weight	87g	82g	46g

VG-550AS

TAMRON

Order No. 18.1060

CCTV lens, with CS mount thread and DC-controlled iris.
- Focal length: 5-50mm

VG-2812AS

TAMRON

Order No. 19.3090

CCTV lens, with CS mount thread and DC-controlled iris.
- Focal length: 2.8-12mm

VG-308AS

TAMRON

Order No. 19.3370

CCTV lens, with CS mount thread and DC-controlled iris.
- Focal length: 3-8mm

VG-20100AS

TAMRON

Order No. 18.0550

CCTV lens, with CS mount thread and DC-controlled iris.
- Focal length: 20-100mm

General specifications:
- CCTV lenses with CS mount thread and DC-controlled iris
- Especially suitable for high-resolution cameras with up to 540 lines
- Higher marginal sharpness and better focussing due to aspherical cut
- Focus fine adjustment
- For 8.5mm (⅓") cameras

Model	VG-550AS	VG-2812AS	VG-308AS	VG-20100AS
Focal length	5-50mm	2.8-12mm	3-8mm	20-100mm
Iris adjustment	automatic	automatic	automatic	automatic
Aperture	1:1.4	1:1.4	1:1.0	1:1.6
Shortest distance	0.3m	0.3m	0.2m	1m
Mounting thread	CS	CS	CS	CS
Dimensions	ø 40mm x 63mm	ø 40mm x 55mm	ø 33mm x 40mm	ø 49mm x 110mm
Weight	90g	79g	47g	156g

Calculting the Visible Picture Detail

The size of the visible picture detail depends on the focal length of the lens and the chip size of the camera.

8.5 mm (⅓ Zoll)-Chip				
Lenses	**Thread**	**Focal length**	**Width factor**	**Height factor**
VML-25	12 mm module	2.5 mm	1.92	1.44
VML-36	12 mm module	3.6 mm	1.33	1
VML-60	12 mm module	6.0 mm	0.8	0.6
VML-80	12 mm module	8.0 mm	0.6	0.45
VML-120	12 mm module	12.0 mm	0.4	0.3
VML-160	12 mm module	16 mm	0.3	0.23
VML-250	12 mm module	25 mm	0.19	0.14
VML-500	12 mm module	50 mm	0.096	0.072
VZLCS-1634D	CS mount	1.6 mm to 3.4 mm	3.00–1.41	2.25–1.06
VG-308AS	CS mount	3 mm to 8 mm	1.60–0.55	1.20–0.45
VG-308ASIR	CS mount	3 mm to 8 mm	1.60–0.80	1.20–0.45
VZLCS-814D	CS mount	3.5 mm to 8 mm	1.37–0.60	1.03–0.45
VZLCS-1014D	CS mount	2.8 mm to 10 mm	1.71–0.48	1.28–0.56
VG-2811ASIR	CS mount	2.8 mm to 11 mm	1.71–0.44	1.28–0.33
VG-2812AS	CS mount	2.8 mm to 12 mm	1.71–0.40	1.28–0.30
VG-1040ASIR	CS mount	10 mm to 40 mm	0.48–0.12	0.36–0.90
VZLCS-550M	CS mount	5 mm to 50 mm	0.96–0.096	0.72–0.072
VG-550AS	CS mount	5 mm to 50 mm	0.96–0.096	0.72–0.072
VZLCS-5018D	CS mount	5 mm to 50 mm	0.96–0.096	0.72–0.072
VG-20100AS	CS mount	20 mm to 100 mm	0.24–0.048	0.18–0.036

The Following Cameras are Supplied with Zoom Lenses

Type of camera	Focal length	Width factor	Height factor
EHD-350HCOL	9.0 mm to 22.0 mm	0.53–0.22	0.40–0.17
EPTZ-500/1000	4.1mm to 73.8 mm	0.88–0.072	0.66–0.054
EPTZ-3000	3.3 mm to 99.0 mm	1.09–0.036	0.82–0.27
Sanyo camera with pan focus	2.8 mm to 7.3 mm	1.29–0.50	0.96–0.37
TVCCD-115COL	3.5 mm to 8.0 mm	1.02–0.6	0.77–0.6
TVCCD-150COL	3.6 mm to 9.0 mm	1.0–0.53	0.75–0.40
TVCCD-1630COL	3.3mm to 99.0 mm	1.09–0.036	0.82–0.27
TVCCD-1700COL	2.6 mm to 6.0 mm	1.38–0.60	1.03–0.45
TVCCD-1706COL	4.0 mm to 9.0 mm	1.20–0.53	0.90–0.40
TVCCD-184HCOL	3.8 mm to 9.5 mm	1.26–0.50	0.94–0.38
TVCCD-186HCOL	3.8 mm to 9.5 mm	1.26–0.50	0.95–0.38
TVCCD-188HCOL	3.8 mm to 9.5 mm	1.26–0.50	0.94–0.38
TVCCD-190COL	3.6 mm to 9.0 mm	1.0–0.53	0.75–0.40
TVCCD-190HCOL	3.6 mm to 9.0 mm	1.0–0.53	0.75–0.40
TVCCD-300COL	3.8 mm to 9.5 mm	1.26–0.50	0.95–0.38
TVCCD-318HCOL	3.8 mm to 9.5 mm	1.26–0.50	0.94–0.38
TVCCD-345VCOL	4.0 mm to 9.0 mm	1.20–0.53	0.90–0.40
TVCCD-350COL	4.0 mm to 9.0 mm	1.20–0.53	0.90–0.40
TVCCD-350VCOL	4.0 mm to 9.0 mm	1.20–0.53	0.90–0.40
TVCCD-360WDR	4.0 mm to 9.0 mm	1.20–0.53	0.90–0.40
TVCCD-370COL	3.0 mm to 9.0 mm	1.60–0.53	1.20–0.40
TVCCD-147COL	4.0 mm to 9.0 mm	1.20–0.53	0.90–0.40
VCC-9500/9600	3.5 mm to 105.0 mm	1.03–0.034	0.77–0.026
VCCXZ-600P	3.5 mm to 105.0 mm	1.03–0.034	0.77–0.026
VCCZM-500P/600P	3.5 mm to 105.0 mm	0.9–0.04	0.68–0.03

Calculating the Visual Range of Cameras

To calculate the detail to be obtained on the monitor, multiply the camera distance towards the object to be monitored with the width and height factors according to the table.

Example of calculation:
With the camera TVCCD-450 with 8.5 mm (⅓") chip and the lens VZLCS-1014D, a door is to be monitored from a distance of 3 m. The focal length of the lens can be adjusted 2.8–10 mm.

Camera distance x factor (width) = monitoring width which can be displayed on the monitor
The visible width at 2.8 mm: 3 m x 1.71 = 5.1 m
The visible width at 10 mm: 3 m x 0.48 = 1.5 m

Reference List VML Lenses

Camera modules and compact cameras are generally supplied with standard lenses with a focal length of approx. 4 mm. However, in many cases it is desirable to use lenses with other focal lengths. Therefore, the lenses of the VML series are available as accessories, which can later replace the original lenses.

As stated in the list, not all lenses are suitable for all cameras. Some lenses cannot be screwed in far enough, due to the shape of camera thread.

The VML lenses can basically not be used for cameras with pin-hole lenses.

VML lenses see page S 57

Type of camera	VML-25	VML-36	VML-60	VML-80	VML-120	VML-160	VML-250	VML-500
AV-3031CCD	—	OK	OK	OK	OK	—	—	—
AV-3031COL	—	OK	OK	OK	OK	—	—	—
AV-430SET	—	OK	OK	OK	OK	OK	—	—
AV-5831CCD	—	OK	OK	OK	OK	—	—	—
AV-5831COL	—	OK	OK	OK	OK	—	—	—
TVCCD-118	—	OK	OK	OK	OK	—	—	—
TVCCD-120	—	OK	OK	OK	OK	—	—	—
TVCCD-125COL	OK	OK	OK	OK	OK	OK	OK	OK
TVCCD-140IR	—	OK	OK	OK	OK	—	—	—
TVCCD-150COL	—	OK	OK	OK	OK	—	—	—
TVCCD-160S	—	OK	OK	OK	OK	—	—	—
TVCCD-160SCOL	—	OK	OK	OK	OK	—	—	—
TVCCD-162S	—	OK	OK	OK	OK	OK	—	—
TVCCD-162SCOL	—	OK	OK	OK	OK	—	—	—
TVCCD-166SCOL	—	OK	OK	OK	OK	—	—	—
TVCCD-172S	—	OK	OK	OK	OK	—	—	—
TVCCD-172SCOL	—	OK	OK	OK	OK	—	—	—
TVCCD-180COL	—	—	OK	OK	OK	OK	—	—
TVCCD-180HCOL	—	—	OK	OK	OK	OK	—	—
TVCCD-22MCOL	—	OK	OK	OK	OK	OK	OK	—
TVCCD-28COL	OK	OK	OK	OK	OK	OK	OK	OK
TVCCD-30M	OK	OK	OK	OK	OK	OK	OK	OK
TVCCD-310COL	OK	OK	OK	OK	OK	OK	—	—
TVCCD-32ACOL	—	—	—	—	—	—	—	—
TVCCD-32MCOL	OK	OK	OK	OK	OK	OK	OK	—
TVCCD-340COL	—	OK	OK	OK	OK	OK	—	—
TVCCD-340HCOL	—	OK	OK	OK	OK	OK	—	—
TVCCD-34COL	OK	OK	OK	OK	OK	OK	OK	OK
TVCCD-380COL	—	OK	—	OK	OK	—	—	—
TVCCD-550	OK	OK	OK	OK	OK	OK	OK	OK
TVCCD-97COL	—	OK	OK	OK	OK	OK	—	—

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TVSP-44COL

Order No. 18.1040

COLOUR | 482mm 19" | TABLE TOP UNIT

Colour video quad processor

- Video splitter operation (quad)
- Real-time display: 50fps
- Full screen display, adjustable to automatic switching mode or individual picture display
- 2-fold digital zoom
- Video motion detection function, to be adjusted separately for each channel
- Freeze function
- On-screen menu control (OSD)
- Title generator for camera ID
- Brightness, colour and contrast can be adjusted for each channel
- Alarm input and signal lost recognition for each video input
- Separate video output jacks for quad mode and full screen mode
- Supplied with plug-in PSU and 482mm (19") rack mounting brackets

Model	TVSP-44COL
Video standard	PAL/CCIR
Inputs	1Vpp/75Ω
Outputs	1Vpp/75Ω
Resolution	720x576 pixels
Alarm inputs	NO
Alarm relay output	NO/NC
Admiss. ambient temp.	0-40 °C
Power supply	12V⎓/1A via suppl. PSU
Dimensions	210x50x215mm
Weight	1.7kg
Connections	
Camera input	4 x BNC, can be fed through
	1 x BNC (VCR)
Monitor output	2 x BNC
Add. video output	1 x BNC (VCR)
Alarm inputs/output	1 x 9-pole Sub-D jack
Power supply	low-voltage jack

VTM-20

Order No. 19.9900

COLOUR

Video VGA converter, for the connection of cameras, digital recorders, video recorders, DVD players and games consoles to a PC monitor.

- Suitable for TFT and CRT monitors with VGA connection
- Full screen video display
- Automatic PAL and NTSC recognition
- Brightness, contrast, colour, picture sharpness, resolution, frequency and video source can be adjusted via on-screen menu (OSD)
- VGA feed-through input for PC, switchable
- Supplied with PSU, VGA connection cable and audio cable with 3.5mm connector

VTM-15

Order No. 18.1930

COLOUR NEW.

Video VGA converter, for connecting one camera or one digital recorder to a TFT or CRT computer monitor with VGA connection.

- Full screen video display
- Brightness, contrast, colour, picture sharpness, resolution and frequency can be adjusted via on-screen menu (OSD)
- Additional BNC video output
- Supplied with PSU and VGA connection cable

Model	VTM-20	VTM-15
System	PAL, NTSC	PAL
Resolution	640x480, 800x600, 1,024x768 at 60/75Hz	800x600, 1,024x768, 1,280x1,024 at 60Hz, 800x600, 1,024x768 at 75Hz, 800x600 at 85Hz
Power supply	9V⎓/600mA via suppl. PSU 230V~/50Hz/5VA	5V⎓/400mA via suppl. PSU 100-240V~/50-60Hz/5VA
Dimensions	170x30x110mm	135x45x80mm
Weight	225g	416g
Inputs	1 x RCA, video	1 x BNC
	1 x RCA L/R, audio	1 x low-voltage jack
	1 x SVHS	
	1 x DSUB-15, VGA	
	1 x 3.5mm stereo jack, audio	
	1 x low-voltage jack	
Outputs	1 x DSUB-15, VGA	1 x BNC
	1 x 3.5mm stereo jack, line	1 x DSUB-15, VGA

TVS-40
Order No. 19.3000

TVS-80
Order No. 19.3010

Camera switchers, for the connection of 4 cameras (TVS-40) or 8 cameras (TVS-80).

- 2 decoupled outputs
- Dwell time 1-15 seconds, adjustable
- Operational mode for each camera input: manual or automatic switching as well as skipping

Model	TVS-40	TVS-80
Inputs	BNC	BNC
Outputs	BNC	BNC
Admiss. ambient temp.	0-40 °C	0-40 °C
Power supply	230V~/50Hz/3VA	230V~/50Hz/3VA
Dimensions	220x44x120mm	220x44x120mm
Weight	900g	900g

SM-164A
Order No. 19.9020

482 mm 19" | TABLE TOP UNIT | DIGITAL

Video matrix, with microprocessor.

- Independently of each other up to 4 users have access to 16 cameras max.
- Text generators at all video outputs
- 16 alarm contacts NO/NC, relay, trigger, video recorder, and alarm reset
- Administration of date and time
- 4 serial inputs RS485 for a maximum of 4 offset control units DCBD-1 or DCJ-2
- Buzzer
- On-screen menu control (OSD)
- Incl. switch-mode PSU
- Supplied with 482mm (19") rack mounting brackets

Model	SM-164A
Video signals	1Vpp/75Ω
Band-pass	6MHz
Crosstalk	48dB
Relay contacts	50V~/0.3A
Admiss. ambient temp.	0-40 °C
Power supply	12V=/1A via suppl. PSU100-240V~/15VA
Dimensions	434x44x180mm, 1RS
Weight	2kg
Connections	
Video inputs	16 x BNC
Video outputs	4 x BNC
Control inputs	4 x 6-pole Western jack
Alarm inputs/outputs	1 x 25-pole Sub-D jack

DCBD-1
Order No. 19.9010

Control unit, for video matrix SM-164A.

- Max. connecting distance: 1,200m (cable at least 4 x ø 0.6mm/4 x 0.22mm^2)
- Controls for picture switching, automatic control for picture sequences and alarm reset
- Table console housing
- Power supply via supplied switch-mode PSU 100-240V~/50Hz/10VA
- Dimensions: 80x190x205mm
- Weight: 410g

Connection of the Cameras

The right selection of connection cables for the video signal and the power supply is part of effectively planning an analog video surveillance system.

Different methods can be considered for the video signal:
- Video signal via coaxial cable
- Special version: one-cable technique
- Transmission via 2-wire cable
- Modulation and transmission via RF transmitter
- Modulation and insertion into antenna systems

Transmission via coaxial cable
The coaxial cable is the method most commonly used for connecting video components. In this case, the video signal is transmitted directly.

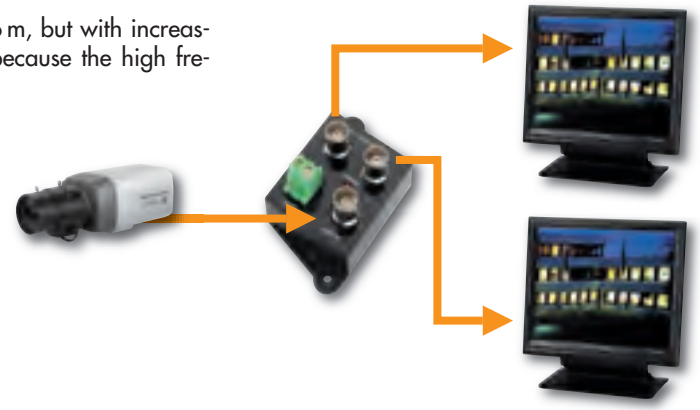
A special video cable is used as the cable, e.g. VCC-59 with an impedance of 75 Ω.

In addition to BNC cables where the connectors are already fitted, cables which are sold by the metre are also often used. The right connectors are then fitted on-site.

How long may a connection cable be?
This may be the most frequently asked question. The max. length of the cable depends on the attenuation of the applied type of cable. The general rule states: the greater the cable thickness, the lower the attenuation and the longer the applied cable may be.
The max. attenuation of the connection cable should not exceed 3 dB, because a reduction of a signal by 3 dB results in a reduction of the level by 50 %.
Current digital recorders in particular show picture interference if the level is too low.
The cable RG-59 is the most frequently used cable which provides an attenuation of 2.4 dB per 100 m at 5 MHz.

With an allowed 3dB attenuation, the cable length for the VCC-59 is 125 m max.

The signal does not disappear straightaway with a cable length of 126 m, but with increasing cable length the fine details and sharp outlines will be reduced, because the high frequencies which produce these signals will be attenuated the most.



Signal distribution
It is often required to distribute one video signal to several video inputs. This distribution should always be carried out by an active video splitter.

A further possibility is to transmit the video signal from one unit to another. For this purpose, many units feature feed-through outputs which are also called LOOP outputs. This output transmits the signal with the right level to the successive unit.

The application of a basic BNC T-piece should be avoided. This results in a reduction of the available level by 50% and most propably in picture interference during further processing.

KNOW-HOW: Connection of the Cameras

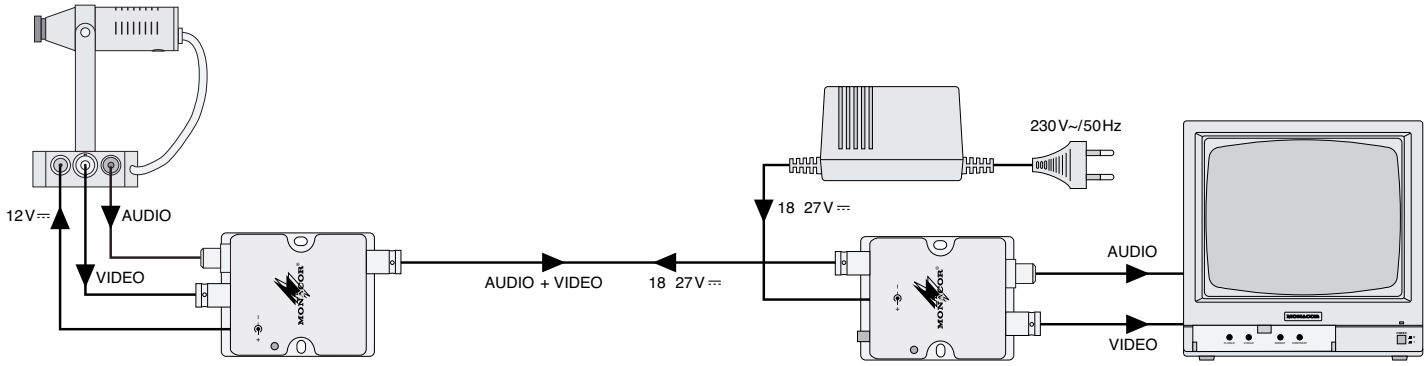
Special version of the coaxial transmission: the one-cable technique

For many years now, we have successfully offered compact camera systems in one-cable technique. For this purpose, only one cable is led to the camera and this is not an expensive system cable in which many different individual leads are bundled as it is the case with systems of our competitors.

The camera system which we offer is connected via one coaxial cable. With this method, both the video signal and the power supply are simultaneously transmitted via the coaxial cable. The signals are separated by a special power supply adapter which is supplied respectively.

Different camera series use this technology, e.g. the TVCCD-160S and the TVCCD-190 series.

As an adapter for retrofitting coaxial cables, we offer the SCU-100 which is able to additionally transmit an audio signal.



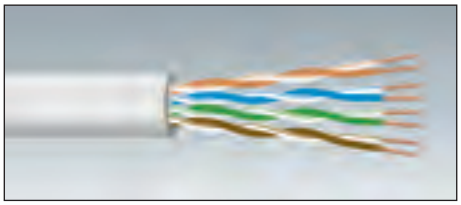
Type of cable	max. cable length
RG-58U	200 m
RG-59U	350 m
RG-6U	500 m

The number of cables to be laid is reduced due to the one-cable technique. This saves material and labour costs, too. However, this is not the only advantage. Greater cable lengths can be achieved by using active modules in the power supply adapters as required by the system. Depending on the applied type of cable, the connection cable to the power supply adapter may have a length of up to 500 m.

Transmission via two-wire cable

The transmission of signals via a two-wire cable offers many advantages.

- Crossing great distances, with active systems up to 1,500 m (colour signal)
- Cable material available at a favourable price, Cat. 5 UTP cable is usually sufficient
- Multiple utilisation of one cable, up to 4 signals via one Cat. 5 cable
- Less interference due to balanced signal transmission



Each signal is transmitted via one twisted pair of wires of the cable. This is one of the advantages, because with the CAT-5100UTP cable, for example, there are 4 pairs of wires available which means that 4 signals can simultaneously be transmitted. To transmit e.g. 4 camera signals from a warehouse to an office, it is no longer necessary to lay 4 video cables; one Cat. 5 cable is sufficient. Even though two additional VB-400V transmission units are required now, the total effort is less than with individual cables.

An additional advantage is the greater cable length to be used. With passive two-wire transmitters, the max. possible length for colour signals is 400 m and the max. length for B/W signals is 600 m. With active single distances even a length of 1,500 or 2,400 m is possible.

In addition to the transmission of video signals, with special transmitters it is also possible to transmit audio signals up to 1,000 m or to transmit VGA signals, mouse signals or keyboard signals of a PC or digital hard disk recorder up to 100 m.

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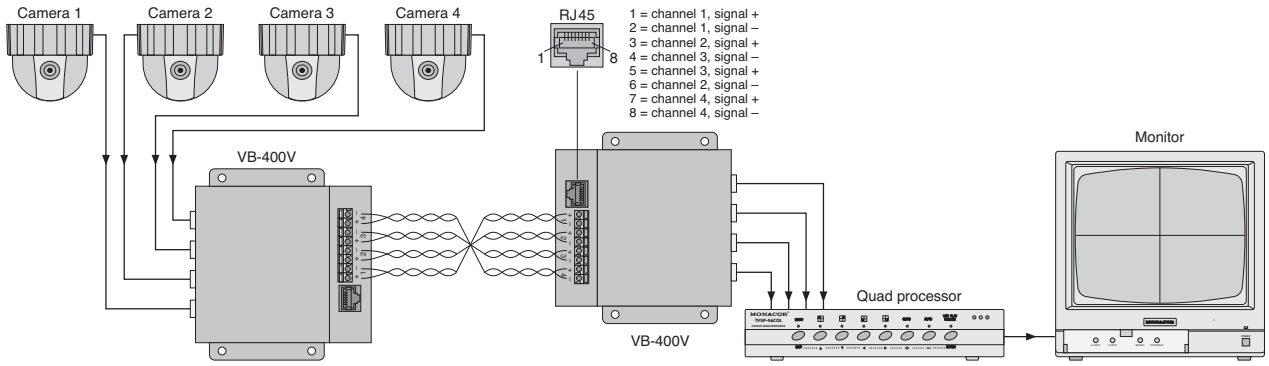

Wireless transmission

In some cases, it is impossible to lay cables, e.g. when crossing a square or a street. For this purpose, wireless transmission with a transmitting frequency in the range of 2.4GHz or 5.8GHz can be used. In the 2.4GHz range a total of 3 from a possible 5 channels and in the 5.8GHz range 6 from a possible 16 channels are available at the same time.

When selecting the frequency band, attention must be paid to the fact that nowadays the W-LAN connections are also established in the 2.4GHz range and a mutual interference can thus not be ruled out. This frequency overlap does not occur in the 5.8GHz range.

"What kind of operating ranges can be achieved?" is one of the most frequently asked question concerning video signal transmission paths.

Predictions on the operating range are difficult to make. The frequency of 2.4 or 5.8GHz does not pass through metal obstacles. Metal surfaces or metal gates reflect the radiation, i.e. it is diverted into another direction. The signals can in fact pass through other obstacles like e.g. walls, windows or bushes and trees, but it partly results in a considerable attenuation of the signal. In order to achieve a perfect result, it should, if possible, be ensured that there is no obstacle between transmitter and receiver (visual contact).

With high-quality systems it is thus possible to achieve distances of 250m. In cases where external reception antennas are used, even greater distances can be achieved.

The attenuation at walls etc. is also the reason why the distances to be achieved indoors are less than the great operating ranges achievable outdoors.

To allow a high flexibility with a wireless transmission, different versions of the system are available.

Video modulator

For surveillance systems in the private sector, customers frequently request to transmit the camera picture directly to an existing TV set. The output of a camera or a digital recorder can generally be connected directly to a SCART or video connection available at current TV sets. In case several cameras are to be connected or signals are to be transmitted to different TV sets, the application of video modulators may be useful.

Up to 3 modulators can be combined and inserted into the antenna system.

The most elegant method is the insertion directly at the antenna tip or behind the BK input. The signal of the modulator can then be received throughout the system and can be shown on several TV sets.

Hum Interference in Video Surveillance Systems

In video surveillance systems where the camera and monitor are located in different buildings or sections of a building, e.g. camera in manufacturing building and monitor in administration building, it happens time and again that the monitor displays a picture with wavelike motions.

The picture is generally allright if the camera is connected directly to the monitor with a short cable.

The applied material is not responsible for this faulty picture, but it usually turns out that the sections of the building are supplied with a separate connection for the mains voltage. This is often the case if new buildings are constructed in addition to existing ones.

An insufficient potential equalization between the old and new mains results in a potential difference and thus in equalizing currents via the ground connection of the camera to the monitor and conseqently causes the interference in the video picture.

In principle, the cause has to be rectified by an expert because other faults could also be the cause, e.g. data losses on network leads, activation of protective circuits, or development of excessive contact voltage due to the potential difference.

If this is not possible, the application of an isolation transformer of the type TVI-100 or TVI-300 can mostly rectify the image interference. In this case, a transformer is connected directly to the video lead.

TVI-100
see page S 70

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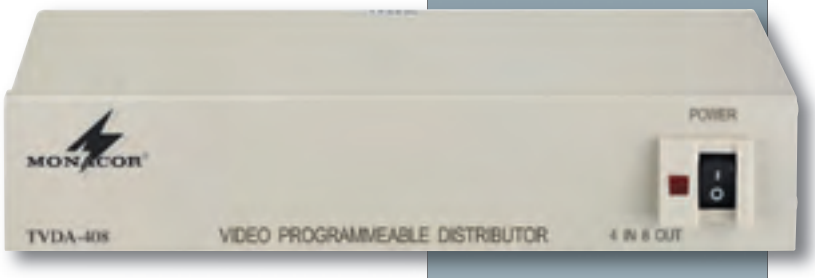
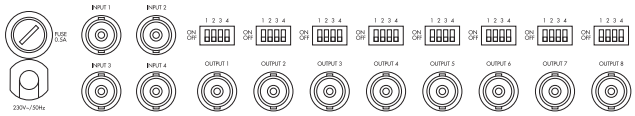
TVDA-408

Order No. 19.8200

Video distributor

- 4 inputs to 8 outputs
- Any assignment desired and also multiple assignment of the outputs to the inputs possible via DIP switches at the rear side of the unit
- BNC connections
- Power supply: 230V~/50Hz/4.5VA
- Dimensions: 225x45x115mm
- Weight: 950g





TVDA-102

Order No. 19.0310

Video distributor

- 1 input to 2 outputs
- BNC connections
- Power LED
- Suitable for wall mounting, supplied with mounting screws
- Power supply: 12V⎓/100mA via supplied plug-in PSU 230V~/50Hz/5VA
- Dimensions: 42x75x50mm

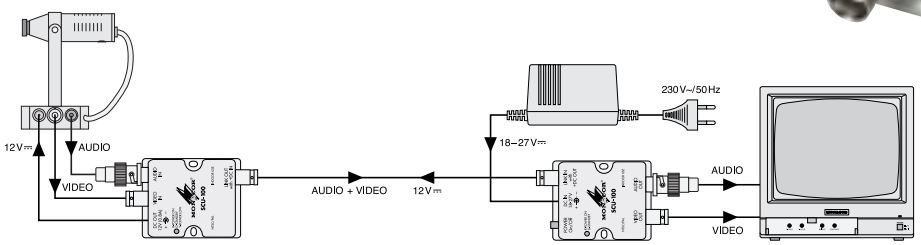
SCU-100

Order No. 17.0910

One-cable transmission system, for distances of up to 500m (cable type: RG-59).

- Consisting of 1 transmitter, 1 receiver, power supply cable (1m) for the camera connection as well as 1 PSU (230V~/50Hz/10VA)
- For audio and video signals
- Power supply for camera to be connected is also transmitted via the coaxial cable (12V⎓/500mA)
- LED indication for operation

(Note: Please order 75Ω coaxial connection cable VCC-59 (green) or VCC-59/WS (white) together with this system! Cable length: 100m).



PLL-1

NEW.

Order No. 18.1940

Video TV modulator, for inserting video sources into the antenna line.

- Suitable for the connection of video cameras, satellite receivers, games consoles, DVD players or wireless video receivers
- LED indication of the set channel (21-69)
- Integrated test pattern generator with audio signal
- Video input and stereo audio inputs via RCA jacks
- Supplied without PSU, matching PSU PS-300ST is available at option

Model	PLL-1
Transmission range	47-862MHz
Video signal	1Vpp/75Ω
Audio signal	500mV/Ri > 10kΩ
Channel range	21-69
Power supply	8-15V⎓/150mA
Admiss. ambient temp.	0-50 °C
Dimensions	55x55x50mm
Weight	65g

TVI-300

Order No. 18.8240

Video isolation transformer, 75Ω, high-quality, for DC separation of unbalanced video signals.

- Wide bandwidth
- High linearity
- Insulated BNC jacks
- Dimensions: 55x85x30mm
- Weight: 95g

TVI-200

Order No. 18.1490

Video isolation transformer, 75Ω, high quality, for DC separation of unbalanced video signals.

- Prevents video-signal distortion caused by ground loops

- Passive, no power supply required
- Wide bandwidth: 20Hz to 11MHz
- High linearity
- 15cm connection cable with BNC plug and BNC jack
- Dimensions: 73x26x28mm (w/o cable)
- Weight: 160g

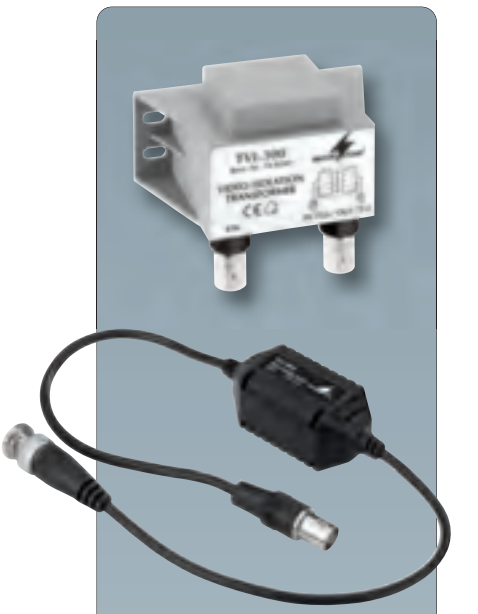
TVI-100

Order No. 19.0320

Video isolation transformer, 75Ω, for DC separation of unbalanced video signals.

- Prevents video-signal distortion caused by ground loops

- Passive, no power supply required
- 15cm connection cable with BNC plug and BNC jack
- Dimensions: 73x21x28mm (w/o cable)
- Weight: 64g



TW-100SET

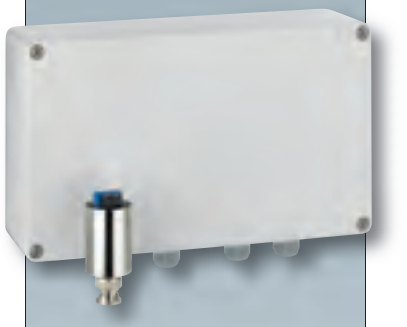
IP67

Order No. 19.7290

Transmission unit, active

- For laying cables outdoors
- Cable length: 1,200m max.

- Connection between transmitter and receiver via 2-wire lead
- Adjustable cable length compensation
- Transmitter can be mounted directly onto camera
- Weatherproof receiver housing (IP67)



TW-220SET

Order No. 18.1570

Transmission unit, active

- For mounting and laying cables indoors

General specifications:

- Cable length for colour signals: 100-1,500m; cable length for B/W signals: 100-2,400m
- Connection between transmitter and receiver via twisted 2-wire leads
- Adjustable amplification of the video signal
- Transmitter and receiver each with BNC jack for the direct connection to a camera, monitor, digital recorder
- Power LED

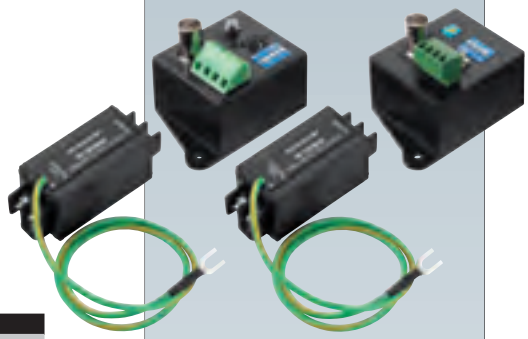
Please order regulated PSU PS-300ST together with this unit!

TW-230SET

Order No. 18.1580

Transmission unit, active, with surge protection

- For laying cables outdoors
- Supplied with 2 x surge protector VB-240UTP

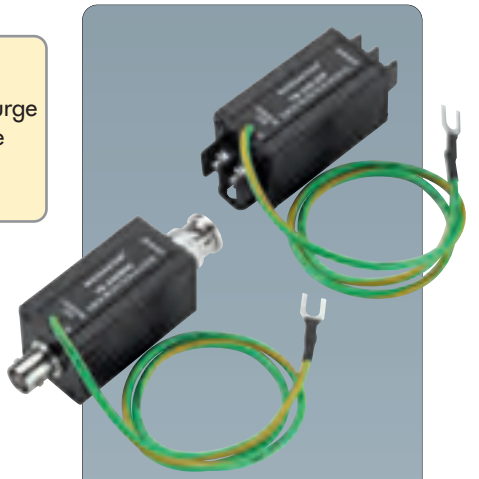


Model	TW-100SET	TW-220SET	TW-230SET
Transmitter			
Video input	1 x BNC plug	1 x BNC jack	1 x BNC jack
Video output	screw connections	screw connections	screw connections
Frequency range	up to 5MHz	up to 5MHz	up to 5MHz
Power supply	screw connections	screw connections	screw connections
	12-24V~/⎓/20mA max.	12V⎓/40mA	12V⎓/40mA
Dimensions	ø 25mm x 61mm	42x46x72mm	42x46x72mm
Receiver			
Video input	screw connections	1 x BNC jack	1 x BNC jack
Video output	screw connections 1Vpp/75Ω	screw connections	screw connections
Frequency range	50Hz to 5MHz	50Hz to 10MHz	50Hz to 10MHz
Power supply	230V~/50-60Hz/3VA	12V⎓/40mA	12V⎓/40mA
Dimensions (WxHxD)	200x55.5x120mm	42x46x72mm	42x46x72mm
Weight	800g	58g (transmitter), 56g (receiver)	58g (transmitter), 56g (receiver)
Other features	protective housing IP67	-	-

VB-240UTP
Order No. 18.1600

Surge protector, with screw connections.
• For twisted 2-wire leads • Response time: 100ns • Max. surge voltage: 4kV • Metal housing • With 40cm ground wire • Dimensions: 25x25x68mm

In order to allow for a perfect protection, one surge protector module must be fitted to each end of the cable.



VB-240BNC
Order No. 18.1590

Surge protector, with BNC jacks.
• For video coaxial cables • Response time: 100ns • Max. surge voltage: 4kV • Metal housing • With 40cm ground wire • Dimensions: 25x25x68mm

VB-400V
Order No. 19.0340

Passive 4-channel transmission unit, for video signals.
• For universal applications as a video transmitter or video receiver • For colour signals up to 400m and B/W signals up to 600m • For twisted telephone cables and Cat. 5 network cables • For free pairs of cables in existing installations • Can also be used in combination with VB-100V, VB-100VPD • Cable connection optionally via RJ45 jack or spring-loaded plug-in terminal • 4 BNC connection jacks • Passive, no power supply required • Supplied in a metal housing • Dimensions: 110x26x78mm

VB-100C
Order No. 19.9690

Passive 2-wire transmission set, for video signals.
• For colour signals up to 125m and for B/W signals up to 250m • For free pairs of cables in an existing network system • Connection between video source and receiver via 1 pair of wires of the Cat. 5E cable • Video connection via BNC plug • Cable connection via screw terminals • Passive, no power supply required • Supplied in pairs

VB-102CAT NEW.
Order No. 18.1990

Passive 2-wire transmission set, for video signals.
• For colour signals up to 400m and for B/W signals up to 600m • For Cat.5 network cables fitted with connectors • Video connection via BNC plug • Cable connection via RJ45 jack • Passive, no power supply required • Supplied in pairs

VB-210AV NEW.
Order No. 18.2000

Passive 2-wire transmission set, for video signals and stereo audio signals.
• For colour signals up to 400m and for B/W signals up to 600m • For Cat. 5 network cables fitted with connectors • Video connection via BNC plug • Stereo audio connection via RCA L/R • Cable connection via RJ45 jack • Passive, no power supply required • Supplied in pairs

VB-202A
Order No. 18.1020

Passive 2-wire transmission set, for audio signals.
• Audio transmission via one pair of wires of a Cat. 5 cable, max. 1,000m • Transmission range: 20-20,000Hz • RCA connections • Cable connection via screw terminals • Passive, no power supply required • Supplied in pairs

VB-100VPD

Order No. 19.0360

Passive 2-wire transmission unit, for video signals, voltage signals and data signals.

- For universal applications as a transmitter or receiver
- For colour signals up to 300m and for B/W signals up to 600m
- For twisted telephone cables and Cat. 5 network cables
- For free pairs of cables in existing installations
- Cable connection via spring-loaded plug-in terminal
- 25cm connection cable with BNC plug, low-voltage plug, 2 cable ends without connectors, 30V/0.5A max.
- Passive, no power supply required

VB-100V

IP65

Order No. 19.0330

Passive 2-wire transmission unit, for video signals.

- For universal applications as a video signal transmitter or video signal receiver
- For colour signals up to 400m and for B/W signals up to 600m
- For twisted telephone cables and Cat. 5 network cables
- For free pairs of cables in existing installations
- Cable connection via screw terminals
- 25cm connection cable with BNC plug
- Passive, no power supply required
- Weatherproof version (IP65)

PD-109

Order No. 05.0045

Voltage distributor, 1 input to 9 outputs.

- Ideally suited for the power supply of several CCTV cameras at the same time via one PSU
- Each output protected against short circuit via PTC protection
- Max. current rating for each output: 1A
- Total current rating: 5A
- POWER LED for each output
- Outputs via screw terminals
- Input via screw terminals, input voltage: 1-30V⎓/~
- Dimensions: 138x41x65mm
- Matching PSU is available at option

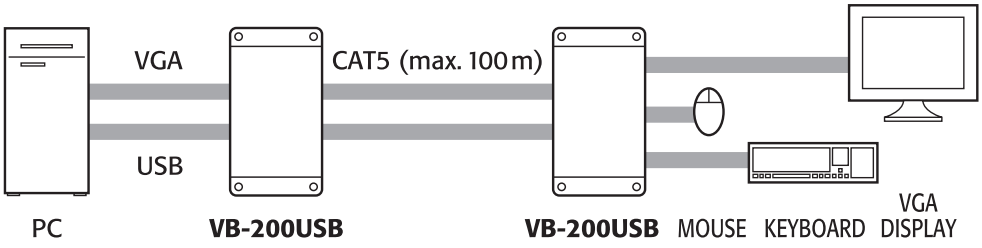
NOTE: Please order switch-mode PSU PSS-5000 together with this unit!

VB-200USB

Order No. 18.1010

Passive transmission set, for transmitting signals from a keyboard, VGA and a mouse via network cables up to a length of 100m.

- Two Cat. 5 network cables (UTP or STP) are required for the signal transmission from VGA, a keyboard or a mouse
- Transmitter with 2 x PS/2, 1 x VGA and 2 x RJ45 connections
- Receiver with 1 x USB, 1x VGA and 2 x RJ45 connections
- Up to 1,280 x 1,024 pixels at a distance of 65m, larger distances at low resolution
- Supplied with VGA and USB connection cables
- Passive, no power supply required
- Supplied in pairs



Identification of the Protective Classes Against Dust and Water

Protection against the entering of foreign bodies and moisture are coded with a special key in accordance with EN60529. This key consists of the letters IP followed by 2 numbers. The numbers show the protective class according to the table below.

IP68 IP67 IP66 IP65 IP64 IP55
IP54 IP50 IP34 IP33 IP24

Protective classes against dust	
First number	**Description**
0	Not protected
1	Protected against solid foreign bodies *50 mm diameter and bigger*
2	Protected against solid foreign bodies *12.5 mm diameter and bigger*
3	Protected against solid foreign bodies *2.5 mm diameter and bigger*
4	Protected against solid foreign bodies *1.0 mm diameter and bigger*
5	Dust-protected
6	Dustproof

Protective classes against water	
Second number	**Description**
0	Not protected
1	Protected against dripping water
2	Protected against dripping water, if unit is tilted up to 15°
3	Protected against spraying water
4	Splashproof
5	Hoseproof
6	Protected against strong jets of water
7	Protected against effects of temporary immersion in water
8	Protected against effects of continuous immersion in water

Example: A unit with the protective class IP54 ist dust-protected (5) and splashproof (4).

PSUs for Video Cameras

The question which PUSU can be applied for video cameras arises time and again.
Most CCD cameras are operated with a 12 V DC voltage.

These cameras need a PSU in order to operate. This PSU has to meet certain requirements. When choosing a PSU it has to be considered that these cameras reach very long running times, 10 hours are no exception, but quite common.

Therefore, all components of the PSU to be integrated have to be designed on a large scale. This applies to the special PSUs to be integrated into the outdoor housings and to the individual PSU PS-12CCD. But if a good standard plug-in PSU or a table-top PSU has to be applied, the unit should be charged with 50 % max. of the rated current. The correct setting has to be considered at units with reversible polarity.

A camera with a 230 V connection can also be used in outdoor housings, which saves the separte PSU.

If a 12 V heating is installed in the outdoor housing (instead of 230 V), a larger external PSU must!! be selected.

Do not use any unregulated PSUs, as these may cause image interference!

The following PSUs have proved successful and should be used:

Unit	Note on the application	Advantage
PS-12CCD (indoors), **PS-12WP** (outdoors), **PS-120WP** (outdoors) **PS-130WP** (outdoors)	To be applied if camera is in continuous and very high demands are made concerning the safety of the PSU.	Suitable for continuous operation
PS-1204ST	Table-top unit, to be applied if the price is most important.	Price
PSS-..., PS-500ST, PS-1000ST	Plug-in PSU for general applications with standard requirements. Easy to place due to plug case.	Price small space requirement
TVG-...PS	PSU for installation into outdoor housings. Please choose matching PSU for the respective housing. The PSU only supplies the camera.	Matching the respective housing

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PS-12CCD

Order No. 27.0740

12V DC voltage supply, suitable for CCD cameras or LED IR floodlights. A professinal PSU with a safety transformer (sealed) and a precision voltage control.
Low-voltage connec-tion via screw terminal, 230V~ connection via mains cable with Euro plug

Direction for use
As opposed to the use of universal PSUs, the PSUs on this page can continuously be operated with the peak current rating.

PS-12WP

IP67

Order No. 27.0741

12V PSU for outdoor applications, suitable for CCTV cameras or LED IR floodlights. Safety transformer (sealed) and a precision voltage control. Mains and low-voltage connections via screw terminals

PS-120WP

IP65

Order No. 27.2000

12V PSU for outdoor applications, with increased output current.

- Suitable for CCTV cameras and LED IR floodlights
- Protected against short circuit, overload and overheating
- Low-voltage connections via 1.5m cable, supplied with 7 plug-in adapters: plugs: 2.5mm, 3.5mm, hollow plugs: 2.35/0.75mm, 3.5/1.35mm, 5.0/2.1mm, 5.5/2.1mm, 5.5/2.5mm; polarity is selected by changing the supplied adapters
- 230V~ connection via 1.5m mains cable with Euro plug

PS-130WP

IP66

Order No. 27.3000

12V PSU for outdoor applications, with increased output current.

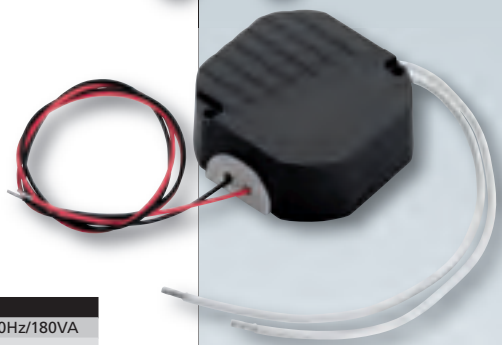
- For an energy-saving activation of IR floodlights
- Activation via integrated photo cell if light is too low
- Adjustable sensitivity
- Additional floating NO/NC contact, max. 230V~/6A
- Protected against short circuit and overload
- Outdoor housing with 2 high-strength cable glands
- Mains connection and low-voltage connections via screw terminals

PS-12UP

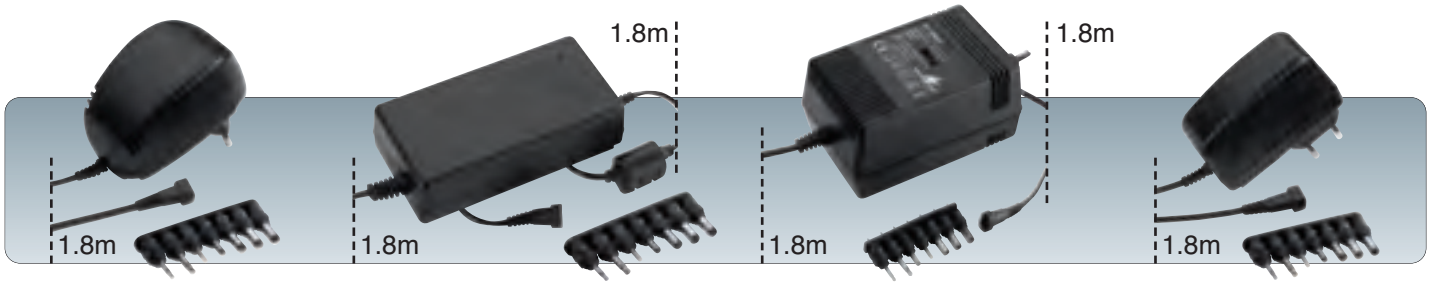
Order No. 27.1730

12V switch-mode PSU, suitable for CCTV cameras or similar consumers.

- For the installation into flush-mounted sockets or outdoor housings
- Input voltage: 230V~/50Hz/180mA
- Regulated output voltage: 12V⎓/1000mA
- Dimensions: ø 55mm x 24mm
- Weight: 90g



Model	PS-12CCD	PS-12WP	PS-120WP	PS-130WP
Input voltage	230V~/50Hz/12VA	230V~/50Hz/9VA	230V~/50Hz/60VA	100-240V~/50-60Hz/180VA
Output voltage	12V⎓ (10-14V⎓)	12V⎓	12V⎓	12V⎓
Charging/output current	450mA	500mA	2A	3A
Admiss. ambient temp.	0-40 °C	-10 to +40 °C	-10 to +40 °C	-25 to +60 °C
Dimensions	80x60x170mm	80x70x205mm	80x70x190mm	150x105x225mm
Weight	650g	790g	800g	1.2kg



PS-1000ST = max. 1A
Order No. 27.1810

PS-500ST = max. 500mA
Order No. 27.1800

Regulated PSUs
with switchable output voltage.
- Protected against short circuit, overload and overheating
- Power LED
- 1.8m connection cable
- The polarity is selected by changing the supplied adapters
- 7 plug-in adapters: plugs: 2.5mm, 3.5mm, hollow plugs: 2.35/0.75mm, 3.5/1.35mm, 5.0/2.1mm, 5.5/2.1mm, 5.5/2.5mm

PSS-5000
Order No. 27.1840

Switch-mode PSU, max. 5A,
with switchable output voltage.
- Ideally suited for peripheral devices like notebooks, printers, scanners, etc.
- Protected against short circuit, overload and overheating
- 1.8m connection cable
- The polarity is selected by changing the supplied adapters
- 7 plug-in adapters: plugs: 2.5mm, 3.5mm, hollow plugs: 2.35/0.75mm, 3.5/1.35mm, 5.0/2.1mm, 5.5/2.1mm, 5.5/2.5mm

PS-1204ST
Order No. 27.1040

Regulated PSU, 1.2A
- Switchable output voltage, protected against short circuit and overload
- 1.8m connecdtion cable
- The polarity is selected by changing the plug-in adapter
- 7 plug-in adapters: plugs: 2.5mm, 3.5mm, hollow plugs: 2.35/0.75mm, 3.5/1.35mm, 5.0/2.1mm, 5.5/2.1mm, 5.5/2.5mm

PSS-800
Order No. 27.1820

Switch-mode PSU, max. 1.6A,
with switchable output voltage.
- Protected against short circuit, overload and overheating
- 1.8m connection cable
- The polarity is selected by changing the supplied adapters
- 7 plug-in adapters: plugs: 2.5mm, 3.5mm, hollow plugs: 2.35/0.75mm, 3.5/1.35mm, 5.0/2.1mm, 5.5/2.1mm, 5.5/2.5mm

The current values do vary, dep. on the output voltage selected. Please pay attention to the table!

Direction for use of universal PSUs
In continuous operation, the current load of universal PSUs should only be up to half of the peak current rating in order to achieve an optimum operational reliability. The stated current rating refers to an output voltage of 12 V respectively. The values may deviate with different voltages.

The units are supplied with 7 different plug-in adapters. One plug each of 2.5 mm and 3.5 mm; hollow plugs: 2.35/0.75 mm, 3.5/1.35 mm, 5.0/2.1 mm, 5.5/2.1 mm, 5.5/2.5 mm. The polarity of the operational voltage is selected by reversing the polarity of the supplied plug-in adapters.

Model	PS-1000ST	PS-500ST	PSS-5000	PS-1204ST	PSS-800
Input voltage	230V~/50Hz/21VA	230V~/50Hz/14VA	100-240V~/50-60Hz/60VA	230V~/50Hz/36VA	100-240V~/50-60Hz/40VA
Output voltage	1.5/3/4.5/6/7.5/9/12V⎓	1.5/3/4.5/6/7.5/9/12V⎓	6/7.5/9/12/13.5/15V⎓	3/6/9/12V⎓	3/4.5/6/7.5/9/12V⎓
Charging/output current	1.4/1.4/1.4/1.4/1.1/1.1/1A	1/1/0.8/0.8/0.7/0.6/0.5A	5/5/5/5/3.8/3.8A	1,200mA	1.6/1.6/1.5/1.2/1.0/0.8A
Admiss. ambient temp.	0-40 °C	0-40 °C	0-40 °C	0-40 °C	0-40 °C
Dimensions	64x52x105mm	55x46x100mm	70x37x140mm	150x75x90mm	35x50x85mm
Weight	560g	420g	480g	1.2kg	170g

PS-414
Order No. 27.1210

Fixed voltage power supply unit
- Electronic, regulated precision control
- Overload-proof and short circuit-proof
- Internal fine adjustment of current limitation

The medium current is typical for most applications with an alternating current requirement. (Example: audio applications)

Model	PS-414
Input voltage	230V~/50Hz/100VA
Output voltage	13.8V⎓
Regulation	< 15mV
Ripple voltage	1mV
Continuous current (24h)	3A
Med. current (max. 4h)	4A
Peak current (max. 0.1h)	6A
Current limiting	6A
Admiss. ambient temp.	0-40 °C
Dimensions	155x110x240mm
Weight	3.0kg

Plug-In Connectors for Power Supply

T-521P
Order No. 34.6100

T-525P
Order No. 34.6110

Plugs for power supply, 2 poles, coaxial, with cable bending protection.
T-521P = 5.5/2.1mm
T-525P = 5.5/2.5mm

T-521J
Order No. 34.6120

T-525J
Order No. 34.6930

Inline jacks for power supply, 2 poles, coaxial, with cable bending protection.
T-521J = 5.5/2.1mm
T-525J = 5.5/2.5mm

TFT-1900COL

48cm 19" COLOUR

Order No. 18.0400

Professional TFT LCD colour monitor

- Perfectly suitable for surveillance systems
- Excellent picture reproduction due to extra short response time: 6 msec.
- High-quality metal housing with metal base, tiltable
- Angle of view: horizontal 160°, vertical 160°
- Reproduction: 500:1, very rich in contrast
- Brightness: 260cd/m², 16.2 million colours
- 2 video inputs, 2 audio inputs, switchable
- Additional S-video and VGA connections
- Perforated back panel acc. to VESA-75 standard
- Operation via multilingual on-screen menu (OSD)
- Supplied with matching PSU
- Visible diagonal screen size: 48cm (19")

Model	TFT-1900COL
General information	
Colour system	PAL
Resolution	1,280x1,024 pixels
Inputs	
Audio	350mV/470kΩ
Video	1Vpp/75Ω
Outputs	
Audio	350mV/470Ω
Video	1Vpp/75Ω
Power supply	230V~/50Hz/50VA
Admiss. ambient temp.	0-50 °C
Dimensions	430x380x70mm (w/o base)
Weight	6.9kg
Connections	
Audio/video	2 x BNC in/out
	1 x S-video in/out
	1 x D-SUB (VGA)
	2 x RCA L/R in/out
Power supply	1 x low-voltage jack

VGA-1950COL

48cm 19" COLOUR NEW.

Order No. 18.2010

TFT LCD colour monitor, with D-Sub VGA connection.
Monitor for the direct connection to our digital recorders with VGA output and for general PC applications.
In combination with VTM-15 also suitable for analog video surveillance.

- Visible diagonal screen size: 48cm (19"), aspect ratio: 4:3
- Resolution: 1,280x1,024
- High-contrast reproduction
- 16.2 million colours
- Plastic housing with stand, tiltable
- Rear wall with perforation according to VESA standard
- OSD
- Supplied with power supply cable and VGA cable
- Power supply: 100-240V~/50Hz/60VA

Picture is similar. Original product appearance may vary.

TVLCD-566COL

14.2cm 5.6" COLOUR

Order No. 19.9680

TFT LCD colour monitor, for surveillance systems and multimedia applications.

- 2 video inputs
- Mirror-inverted display possible
- Control for brightness, colour and volume
- Audio connection and video connection optionally via adapter cable with RCA connectors or mini DIN system cable (supplied)
- With 6.3mm (¼") thread and stand
- Incl. IR remote control
- Supplied with matching PSU

Model	TVLCD-566COL
General information	
Colour system	PAL
Resolution	hor. 960 x vert. 234 pixels
Inputs	
Audio	30mV/10kΩ
Video	1Vpp/75Ω
Outputs	
Audio	int. speaker 8Ω/0.5W_{MAX}
Video	1Vpp/75Ω
Power supply	12V⎓/650mA via suppl. PSU
Admiss. ambient temp.	0-40 °C
Dimensions	155x120x35mm
Mount. cutout/mount. depth	-
Dimensions front panel	-
Weight	380g
Connections	
Audio/video	1 x RCA (audio), 2 x RCA (video)
Power supply	1 x low-voltage jack

TVLCD-710COL

17.8cm 7" COLOUR NEW.

Order No. 18.2030

TFT active matrix LCD colour monitor, for surveillance systems and multimedia applications.

- Sharp and quick image display, rich in contrast, 4:3 or 16:9, switchable
- 2 video inputs, 2 audio inputs, switchable
- Mirror-inverted display possible
- Brightness, contrast, colour and volume to be adjusted via OSD
- Audio connection and video connection optionally via adapter cable with RCA connectors or 5m mini DIN system cable (supplied)
- With 6.3mm (¼") thread and stand
- Matching PSU PS-1204ST is available at option

Model	TVLCD-710COL
General information	
Colour system	PAL/NTSC
Resolution	1,440x234 pixels
Inputs	
Audio	50mV/10kΩ
Video	1Vpp/75Ω
Outputs	
Audio	int. speak. 8Ω/1W_{MAX}
Video	-
Power supply	12V⎓/800mA
Admiss. ambient temp.	0-50 °C
Dimensions	180x120x25mm
Weight	2kg
Connections	
Audio/video	2 x RCA (video)
	2 x RCA (audio)
Power supply	1 x low-voltage jack

CDM-1503COL

38cm 15" COLOUR

Order No. 18.8150

Colour monitor with flat tube

- Metal housing
- High resolution
- Automatic switching PAL and NTSC
- Built-in speaker (2W)
- 2 audio channels and video channels, switchable
- Additional Y/C video input
- Audio inputs and video inputs can be fed through
- Operation via on-screen menu (OSD)
- Visible diagonal screen size: 35.5cm (15")

CDM-1403COL

35cm 14" COLOUR

Order No. 19.5680

Colour monitor, in a metal housing.

- High resolution
- Automatic switching PAL/NTSC
- Built-in speaker (2W)
- Additional Y/C video input
- Front controls for sharpness, colour intensity, brightness, contrast, and colour temperature (NTSC)

CDM-903COL

22.5cm 9" COLOUR

Order No. 18.1730

Colour monitor, in a metal housing.

- High resolution
- Automatic switching PAL/NTSC
- Additional S-video input
- Front controls for sharpness, colour intensity, brightness, contrast, and colour temperature (NTSC only)
- Visible diagonal screen size: approx. 22.5cm (9")

Model	CDM-1503COL	CDM-1403COL	CDM-903COL
CRT, system	38cm (15"), PAL/NTSC	35cm (14"), PAL/NTSC	22.5cm (9"), PAL/NTSC
Resolution	400 lines	400 lines	400 lines
Synchronisation CCIR	hor. 15,625Hz, vert. 50Hz	hor. 15,625Hz, vert. 50Hz	hor. 15,625Hz, vert. 50Hz
Synchronisation EIA	hor. 15,750Hz, vert. 60Hz	hor. 15,750Hz, vert. 60Hz	hor. 15,750Hz, vert. 60Hz
Video input	1Vpp/75Ω	1Vpp/75Ω	1Vpp/75Ω
Impedance switching	75Ω/high, automatic	75Ω/high, manual	75Ω/high, manual
Video feed-through output	1Vpp/75Ω	1Vpp/75Ω	1Vpp/75Ω
Audio input and output	50-150mV	-	-
Linearity	hor. 10%, vert. 10%	hor. 10%, vert. 10%	hor. 10%, vert. 10%
Admiss. ambient temp.	-10 °C to +50 °C	0-40 °C	0-40 °C
Power supply	100-240V~/50-60Hz/90VA	100-240V~/50-60Hz/80VA	100-240V~/50-60Hz/60VA
Dimensions	365x340x385mm	360x345x360mm	220x235x295mm
Weight	14kg	16kg	9kg
Connections	1 x 4-pole mini DIN, Y/C	1 x 4-pole mini DIN, Y/C	1 x 4-pole mini DIN, for S-video
	4 x BNC	2 x BNC	2 x BNC
	4 x RCA		

CDM-1203

30.5cm 12"

Order No. 19.5740

B/W monitor, in a metal housing.

- Controls for horizontal and vertical picture rolling, brightness and contrast
- Video feed-through output
- EIA/CCIR selector switch

CDM-1003

25cm 10"

Order No. 19.5730

B/W monitor, in a metal housing.

- Controls for horizontal and vertical picture rolling, brightness and contrast
- Video feed-through output
- EIA/CCIR selector switch

CDM-550

14cm 5.5" NEW.

Order No. 18.1900

B/W monitor

- 2 video inputs with automatic or manual switching
- Built-in speaker
- Controls for brightness, contrast, vertical picture rolling, volume and dwell time
- 10V power supply for up to 2 cameras, max. 250mA
- Power supply via supplied plug-in PSU

Model	CDM-1203	CDM-1003	CDM-550
CRT, system	30.5cm (12")	25cm (10")	14cm (5.5")
Resolution	> 1,000 lines	> 1,000 lines	420 lines
Synchronisation CCIR	hor. 15,625Hz vert. 50Hz	hor. 15,625Hz vert. 50Hz	hor. 15,625Hz, vert. 50Hz
Synchronisation EIA	hor. 15,734Hz vert. 60Hz	hor. 15,734Hz vert. 60Hz	hor. 15,750Hz, vert. 60Hz
Video input	1Vpp	1Vpp	1Vpp/75Ω
Impedance switching	75Ω/high, automatic	75Ω/high, automatic	-
Video feed-through output	1Vpp/75Ω	1Vpp/75Ω	-
Audio input and output			integr. speaker, 1W
Linearity	hor.10%, vert.10%	hor.10%, vert.10%	-
Admiss. ambient temp.	0-40 °C	0-40 °C	0-40 °C
Power supply	100-240V~/50-60Hz/22VA	100-240V~/50-60Hz/22VA	12V⎓/1A
			via suppl. PSU
			100-240V~/50Hz/20VA
Dimensions	305x287x302mm	220x234x248mm	190x150x200mm
Weight	7.3kg	4.3kg	1.8kg
Connections	2 x BNC	2 x BNC	2 x RCA (video in)
			2 x RCA (audio in)
			1 x RCA (video out)
			1 x RCA (audio out)
			3 x low-voltage jack

RAPPORT-337

Order No. 18.0830

High-quality multifunctional testing unit, for the video surveillance technology.

- The RAPPORT-337 combines the most important testing units in one compact housing:
  - TFT monitor with 6.4cm (2.5") diagonal screen size
  - Test pattern generator with 4 different test patterns
  - PTZ controller for testing high-speed dome cameras (PELCO D protocol)
  - PTZ protocol analyser for displaying data sent via an RS-485 interface
  - Cable tester for network cables
  - Meter for measuring voltage, current, resistance and continuity
- All indications can also be transmitted to an additional monitor or beamer via the video output. Ideally suited for training sessions and presentations
- Power supply via 6 x 1.2V NiMH rech. batteries (2,500mAh) or 12V⎓/1A via supplied PSU 100-240V~/50-60Hz
- Dimensions: 88x190x58mm
- Supplied with extensive accessories like shoulder bag, carrying strap, 6 x NiMH rech. batteries, UTP test adapter, set of connection cables and connecting adapter for motor vehicles
- Instruction manual: English, OSD: English

CCTV-1TEST

Order No. 19.5940

TFT LCD monitor set, consisting of a monitor, 12V rechargeable battery (2.3Ah), plug-in PSU, connection cable and a practical nylon bag.

- For mobile surveillance, service and multimedia applications
- Optimum picture quality
- Suitable for all standard video signal sources
- Mirror-inverted display possible
- Controls for brightness, contrast, colour, and volume
- Plastic monitor housing with 6.3mm (¼") thread and folding bracket

Model	CCTV-1TEST
General information	
Colour system	PAL
Resolution	hor. 320 x vert. 240 pixels
Inputs	
Audio	50mV
Video	1Vpp/75Ω
Outputs	
Audio	headphones, stereo
Video	-
Power supply	12V⎓/660mA
Admiss. ambient temp.	0-40 °C
Dimensions	162x133x55mm
Mount. cutout/mount. depth	-
Dimensions front panel	-
Weight	2.2kg (in total)
Connections	
Audio/video	1 x 3.5mm jack, stereo
Power supply	1 x 3.5mm jack, mono

AV-410SET

Order No. 18.0270

Audio and video transmission system, 2.4GHz, 10mW, consisting of one push-on camera transmitter and one receiver with SMA antenna connection.

- Miniature transmitter with BNC connection, built-in microphone, fixed transmitting antenna, power supply: 12V⎓/500mA, 2 DC jacks
- Operating range: approx. 20m indoors, 100m outdoors
- Power supply of receiver: 8V⎓/300mA, audio output and video output via RCA jacks
- Channels 1-4, switchable or automatically changing; maximum of 2 channels simultaneously, e.g. channels 1 + 3
- Supplied with plug-in PSU for receiver, omnidirectional antenna, mains cable for connecting transmitter and camera (only suitable for 12V cameras), AV connection cable

The range indoors very much depends on the built volumes.

AV-420SET

COLOUR

Order No. 18.0280

Audio and video transmission system, 2.4GHz, 10mW, consisting of one colour camera operated by rech. batteries and one receiver with SMA antenna connection.

- Colour camera with 8.5mm (⅓") CMOS chip, 380 TV lines, min. illumination: 1.5 lux, built-in microphone, fixed transmitting antenna
- Power supply for camera via integrated rech. lithium battery (operating time: approx. 5 hours at 2 hours charging time)
- Lens: 4mm/1:1.5
- Operating range: approx. 20m indoors, 100m outdoors
- Power supply of receiver: 8V⎓/300mA, audio output and video output via RCA jacks
- Channels 1-4, switchable or automatically changing; maximum of 2 channels simultaneously, e.g. channels 1 + 3
- Supplied with plug-in PSU for receiver, omnidirectional antenna, plug-in charger 5V⎓/1A and wall bracket for camera transmitter, AV connection cable

AV-430SET

IP66 COLOUR

Order No. 18.0290

Audio and video transmission system, 2.4GHz, 10mW, consisting of one colour camera with transmitter and additional IR diodes for B/W operation at night built into an outdoor housing as well as one receiver with SMA antenna connection.

- Colour camera with 6.35mm (¼") CCD chip, 420 TV lines, built-in microphone, transmitting antenna with SMA connection, min. illumination: 1 lux, power supply: 12V⎓/500mA
- 26 IR LEDs for automatic adjustment of the luminous intensity (IR operating range: max. 15m)
- Automatic switching from colour operation to B/W operation, depending on the illumination (day/night switching)
- Lens: 6.8mm/1:2.0
- Operating range: approx. 20m indoors, 100m outdoors
- Power supply of receiver: 8V⎓/300mA, audio output and video output via RCA jacks
- Channels 1-4, switchable or automatically changing; maximum of 2 channels simultaneously, e.g. channels 1 + 3
- Supplied with plug-in PSU for receiver, omnidirectional antenna, plug-in PSU and wall bracket for transmitter, AV connection cable

AV-3031CCD
Order No. 19.2680

AV-5831CCD
Order No. 19.0930

IP65

Camera transmitters, B/W,
in a metal outdoor housing with wall bracket.

- Channel 1, internally switchable
- Camera: 400 lines, f=3.6mm, 0.1 lux
- 2.4GHz, 10mW, 5 channels (AV-3031CCD)
- 5.8GHz, 25mW, 16 channels (AV-5831CCD)

AV-3031COL
Order No. 19.0900

AV-5831COL
Order No. 19.0940

COLOUR IP65

Camera transmitters, colour,
in a metal outdoor housing with wall bracket.

- Channel 1, internally switchable
- Camera: 330 lines, f=3.6mm, 1 lux
- 2.4GHz, 10mW, 5 channels (AV-3031COL)
- 5.8GHz, 25mW, 16 channels (AV-5831COL)

AV-3030TX
Order No. 19.5000

AV-5820TX
Order No. 19.7980

IP54

Transmitter units for the transmission of video and audio signals

- Stereo audio transmission
- Adjustable audio level
- Video picture inversion
- Connection for control channel
- Momentary push-button for channel selection
- Weatherproof ABS housing incl. clamp for pole mounting
- 2.4GHz, 10mW, 5 channels (AV-3030TX)
- 5.8GHz, 25mW, 16 channels (AV-5820TX)

Model	AV-3031CCD	AV-5831CCD	AV-3031COL	AV-5831COL	AV-3030TX	AV-5820TX
Type	transmitter, 10mW	transmitter, 25mW	transmitter, 10mW	transmitter, 25mW	transmitter, 10mW	transmitter, 25mW
Frequency	2.4GHz	5.8GHz	2.4GHz	5.8GHz	2.4GHz	5.8GHz
Video signal	camera	camera	camera	camera	1Vpp/75Ω	1Vpp/75Ω
Audio signal	-	-	-	-	0.1-10V, adjustable	0.1-10V, adjustable
Type of antenna	omnidirectional	omnidirectional	omnidirectional	omnidirectional	PCB	PCB
Video bandwidth	30Hz-7MHz	30Hz-7MHz	30Hz-7MHz	30Hz-7MHz	30Hz-5MHz	30Hz-5MHz
Audio bandwidth	-	-	-	-	15Hz-15kHz	15Hz-15kHz
Audio transmission			-		stereo	stereo
Max. range						
Indoors	50m	30-40m	50m	30-40m	50m	approx. 30-40m
Outdoors	500m	500m	500m	500m	500m	500m
Power supply	12V⎓/300mA	230V~/50Hz/10VA	12V⎓/400mA	230V~/50Hz/15VA	8-30V⎓/160mA at 12V⎓	8-30V⎓/250mA at 12V⎓
Dimensions	110x208x197mm	110x208x197mm	110x208x197mm	110x208x197mm	170x70x135mm	170x70x135mm
Protective class	IP65	IP65	IP65	IP65	IP54	IP54
Admiss. ambient temp.	-10 °C to +55 °C	-10 °C to +55 °C	-10 °C to +55 °C	-10 °C to +55 °C	-10 °C to +55 °C	-10 °C to +55 °C
Weight	1.5kg	1.3kg	1.3kg	1.3kg	350g	350g
Connections						
Video/audio	-	-	-	-	spring-load. term.	spring-load. term.
Power supply	3.5mm inline jack	mains connection	3.5mm inline jack	mains connection	spring-load. term.	spring-load. term.
Control channel	-	-	-	-	spring-load. term.	spring-load. term.

AV-3010RDX

Order No. 19.5510

Receiver unit for the reception of video and audio signals

For the operation with an external DX antenna.

- 2.4GHz, 5 channels

AV-5810RDX

Order No. 18.8070

Receiver unit for the reception of video and audio signals

For the operation with an external DX antenna.

- 5.8GHz, 16 channels

General specifications:

- SMA antenna connection, supplied with 0dB omnidirectional antenna
- 2 video outputs
- Adjustable video level and audio level
- Stereo audio reception
- Video picture inversion
- Control channel output up to 42V⎓/500mA rating
- Connection for DX antenna
- Display of RF level
- Automatic channel switching
- Adjustable channels, indication via display

AV-3050R

Order No. 19.5070

Receiver unit for the reception of video and audio signals

- 2.4GHz, 5 channels

AV-5840R

Order No. 19.8000

Receiver unit for the reception of video and audio signals

- 5.8GHz, 16 channels

General specifications:

- Adjustable video level
- Stereo audio reception
- Video picture inversion
- Control channel output up to 15V⎓/100mA rating
- Display of RF level
- Automatic channel switching
- Adjustable channels, indication via display

AV-3030R

IP54

Order No. 19.2850

Receiver unit for the reception of video and audio signals

- 2.4GHz, 5 channels
- Incl. 8dB PCB antenna

AV-5810R

IP54

Order No. 19.7960

Receiver unit for the reception of video and audio signals

- 5.8GHz, 16 channels
- Incl. 15dB PCB antenna

General specifications:

- Adjustable video level
- Stereo audio reception
- Video picture inversion
- Control channel output up to 15V⎓/100mA rating
- Automatic channel switching
- Adjustable channels, indication via display
- Weatherproof ABS housing incl. clamp for pole mounting

Model	AV-3010RDX	AV-5810RDX	AV-3050R	AV-5840R	AV-3030R	AV-5810R
Type	receiver	receiver	receiver	receiver	receiver	receiver
Frequency	2.4GHz	5.8GHz	2.4GHz	5.8GHz	2.4GHz	5.8GHz
Video signal	0.7-1.2Vpp/75Ω	0.7-1.2Vpp/75Ω	1Vpp±0.1V/75Ω	1Vpp±0.1V/75Ω	0.7-1.2Vpp/75Ω	0.7-1.2Vpp/75Ω
Audio signal	500mV/1kΩ	500mV/1kΩ	500mV/1kΩ	500mV/1kΩ	500mV/1kΩ	500mV/1kΩ
Type of antenna	SMA jack	SMA jack	3dB PCB	omnidirectional externally via SMA jack	8dB PCB	15dB PCB
Video bandwidth	30Hz-5MHz	30Hz-5MHz	30Hz-5MHz	30Hz-5MHz	30Hz-5MHz	30Hz-5MHz
Audio bandwidth	15Hz-15kHz	15Hz-15kHz	15Hz-16kHz	15Hz-15kHz	15Hz-16kHz	15Hz-16kHz
Audio transmission	stereo	stereo	stereo	stereo	stereo	stereo
Max. range						
Indoors	dep. on antenna	dep. on antenna	approx. 50m	approx. 30-40m	70-125m	60-70m
Outdoors	dep. on antenna	dep. on antenna	500m	500m	1,200m	2,200m
Power supply	7-30V⎓/200mA at 12V⎓	7-30V⎓/200mA at 12V⎓	7-30V⎓/150mA at 12V⎓	7-30V⎓/150mA at 12V⎓	9-30V⎓/150mA at 12V⎓	9-30V⎓/200mA at 12V⎓
Dimensions	160x105x45mm	160x105x45mm	117x68x35mm	117x68x35mm	180x135x70mm	180x135x70mm
Protective class	IP30	IP30	IP30	IP30	IP54	IP54
Admiss. ambient temp.	-10 °C to +55 °C	-10 °C to +55 °C	-10 °C to + 55 °C	-10 °C to +55 °C	-10 °C to +55 °C	-10 °C to +55 °C
Weight	750g	750g	230g	230g	430g	430g
Connections						
Video/audio	RCA/6-pole DIN AV	RCA/6-pole DIN AV	BNC/3.5mm jack	BNC/3.5mm jack	spring-load. term.	spring-load. term.
Power supply	low-voltage jack	low-voltage jack	low-voltage jack	low-voltage jack	spring-load. term.	spring-load. term.
Control channel	spring-load. term.	spring-load. term.	spring-load. term.	spring-load. term.	spring-load. term.	spring-load. term.

Wireless Transmission

Information about the wireless transmission of video signals and audio signals by using transmitting units and receiving units of the AV-3000 and AV-5800 series!

The main difference of these two systems is the transmission range of 2.4 GHz for the AV-3000 system and 5.8 GHz at the AV-5800 system.

The video/audio transmission system of the AV-3000 series is both suitable for industrial and commercial applications as well as for private applications. It operates in the frequency range of 2.400-2.4835GHz with a transmitting power of 10 mW. The frequency range is divided into 5 channels, 3 of which can be used simultaneously for parallel operation (channels 1, 3, and 5).

At a suitable antenna configuration, even all 5 channels can be used for parallel operation.

Due to the high sensitivity and the selectivity of the channels increased by approx. 20 dB of the receiving units, this system allows to obtain the same or an even better picture quality and transmission range at a transmitting power of 10 mW than systems with a transmitting power above that!

The system is suitable for the transmission of standard video signals in the formats: PAL, NTSC, and SECAM. The components of the AV-3000 series operate in a harmonized frequency range and can thus be universally applied throughout Europe.

Channel assignment: AV-3000 wireless transmission system	
Channel 1:	2,414.5 MHz
Channel 2:	2,428.5 MHz
Channel 3:	2,442.5 MHz
Channel 4:	2,456.5 MHz
Channel 5:	2,470.5 MHz

The wireless system of the AV-5800 system is especially designed for the requirements of professional applications where a safe transmission without interference must be ensured. This wireless system was developed due to the increasing assignment of the 2.4GHz frequency range and the demand for additional transmission channels.

It operates in the frequency range of 5.725–5.875 GHz with a transmitting power of 25 mW.

The frequency range is divided into 16 channels, where 6 channels can be used for parallel operation (channels 1, 4, 7, 10, 13, and 16). At a suitable antenna configuration, a parallel operation of up to 8 systems is possible.

The system is suitable for the transmission of standard video signals of the formats: PAL, NTSC, and SECAM. The components of the AV-5800 series operate in a harmonized frequency range and can thus be universally applied throughout Europe.

Channel assignment: AV-5800 wireless transmission system	
Channel 1:	5,732 MHz
Channel 2:	5,741 MHz
Channel 3:	5,750 MHz
Channel 4:	5,759 MHz
Channel 5:	5,768 MHz
Channel 6:	5,777 MHz
Channel 7:	5,786 MHz
Channel 8:	5,795 MHz
Channel 9:	5,804 MHz
Channel 10:	5,813 MHz
Channel 11:	5,822 MHz
Channel 12:	5,831 MHz
Channel 13:	5,840 MHz
Channel 14:	5,849 MHz
Channel 15:	5,858 MHz
Channel 16:	5,867 MHz

Example of application:
One of the main applications is the transmission of video signals to locations where it is impossible or only possible with great effort to lay video cables.
For example, crossing streets, squares, and bodies of water. In these cases, best results are achieved with transmitters and receivers for the outer wall.

Frequency	Transmitter	Receiver
2.4 GHz	AV-3030TX	AV-3030R
5.8 GHz	AV-5820TX	AV-5810R

The AV-...RDX receivers are recommended to achieve larger transmission ranges. An external antenna can be connected to these receivers. Please remember: antennas with a high gain only have very narrow horizontal and vertical aperture angles. In order to fully utilize this advantage, pay attention to an exact alignment of the reception antenna towards the receiver.

Simultaneously used channels:
In order to ensure an optimum reception, the following free channel spaces should be kept:

2.4GHz range = 1 free channel space
5.8GHz range = 2 free channel spaces

With this configuration, it is possible to use up to 3 channels simultaneously in the 2.4Ghz range and up to 6 channels simultaneously in the 5.8GHz range.

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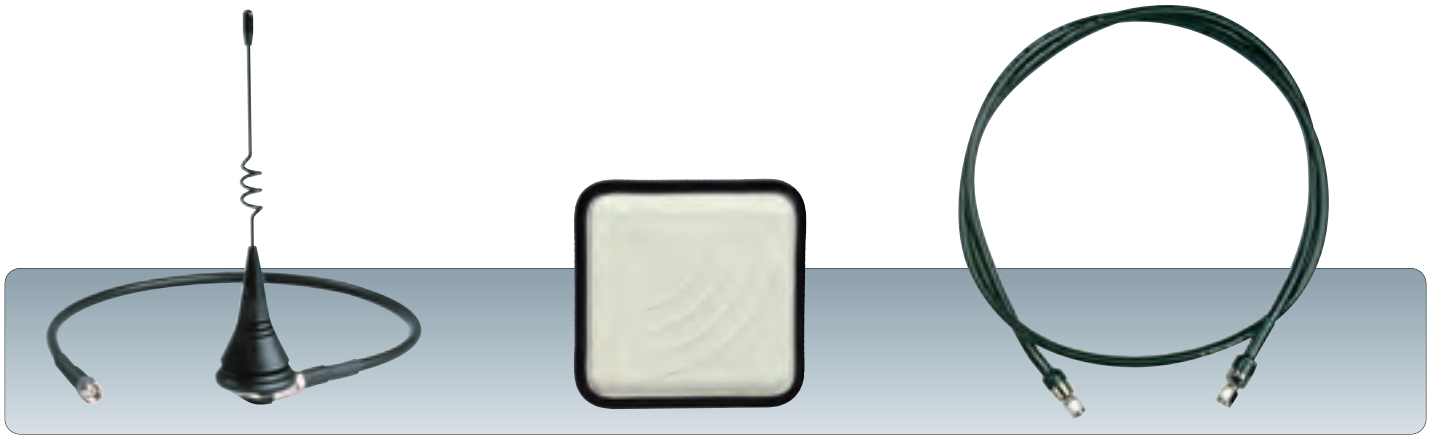
Antennas, LED Infrared Floodlights



DX-25

Order No. 19.2900

IP65

Omnidirectional antenna, for frequencies 2.3-2.5GHz.

- Gain: 2.5dB
- 30cm cable

DX-120

Order No. 19.8060

IP65

Directional antenna, for frequencies 2.3-2.5GHz.

- Gain: 12dB, SMA jack
- Incl. mounting auxiliaries, w/o cable
- Dimensions (WxHxD): 180x180x45mm

DX-58/18

Order No. 19.8030

IP65

Directional antenna, for frequency 5.8GHz.

- Gain: 18dB, SMA jack
- Incl. mounting auxiliaries, w/o cable
- Dimensions (WxHxD): 180x180x45mm

Coaxial Antenna Cables

For connecting DX antennas to corresponding receivers.
2 x SMA plug

Model	Order No.	Cable length
DXC-200	*19.2880*	2m
DXC-400	*19.2890*	4m

IR-98/20

Order No. 18.1540

IP66

LED infrared floodlight, with a high operating range of approx. 60m and a narrow aperture angle of 20°.

- Ideally suited for the use with tele lenses
- For the use in surveillance systems with cameras suitable for infrared
- 98 LEDs of high luminous intensity as light source, slightly visible (880nm)
- Weatherproof aluminium housing
- 6.3mm (¼") thread, matching bracket: e.g. TVH-250/SW, TVH-260/AL, TVH-8A, TVH-14A available at option
- Matching regulated PSU, e.g. PS-120WP, PS-130WP, available at option

IR-294/60

Order No. 18.1530

IP66

LED infrared floodlight, with a high operating range of approx. 40m and an aperture angle of 60°.

- Ideally suited for illuminating large areas
- For the use in surveillance systems with cameras suitable for infrared
- 294 LEDs of high luminous intensity as light source, slightly visible (880nm)
- Weatherproof aluminium housing
- 6.3mm (¼") thread, matching bracket: e.g. TVH-250/SW, TVH-260/AL, TVH-8A, TVH-14A available at option
- Matching regulated PSU, e.g. PS-130WP, available at option

Model	IR-98/20	IR-294/60
Power supply	12V⎓/1.1A	12V⎓/3A
IR wave range	880nm	880nm
Lighting hours	approx. 10,000h	approx. 10,000h
Radiation angle	20°	60° (hor.) x 40° (vert.)
Range	approx. 60m	approx. 40m
Protective class	IP66	IP66
Admiss. ambient temp.	-30 °C to +40 °C	-30 °C to +40 °C
Dimensions	110x100x55mm	200x134x64mm
Weight	750g	1.7kg

LED Infrared Floodlights

IRU-98/60

Order No. 18.0970

IP66

LED infrared floodlight, wavelength: 940nm
- LEDs are invisible during operation
- Operating range: 17m max.

IR-98LED

Order No. 19.1710

IP66

LED infrared floodlight, wavelength: 880nm
- LEDs are slightly visible during operation
- Operating range: 25m max.

General specifications:
- For the use in surveillance systems with cameras suitable for infrared
- 98 LEDs of high luminous intensity as light source
- Weatherproof aluminium housing
- 6.3mm (¼") thread, matching bracket: e.g. TVH-250/SW, TVH-260/AL, TVH-8A, TVH-14A available at option
- Matching regulated PSU, e.g. PS-120WP, PS-130WP, available at option

With the infrared floodlights of the IR series (wavelength: 880nm), the glow of the LEDs is slightly visible during operation. With the IRU series (wavelength: 940nm), the LED operation is invisible.

IRU-56/60

Order No. 18.0960

IP66

LED infrared floodlight, wavelength: 940nm
- LEDs are invisible during operation
- Operating range: 13m max.

IR-56LED

Order No. 19.1700

IP66

LED infrared floodlight, wavelength: 880nm
- LEDs are slightly visible during operation
- Operating range: 18m max.

General specifications:
- For the use in surveillance systems with cameras suitable for infrared
- 56 LEDs of high luminous intensity as light source
- Weatherproof aluminium housing
- 6.3mm (¼") thread, matching bracket: e.g. TVH-250/SW, TVH-260/AL, TVH-8A, TVH-14A available at option
- Matching regulated PSU, e.g. PS-120WP, PS-130WP, available at option

IR-12/65LED

Order No. 19.9000

IP65

LED infrared floodlight, with an operating range of 10m and an aperture angle of 65°.
- 40 LEDs of high luminous intensity
- Long life
- Weatherproof housing
- Movable mounting bracket
- Matching regulated PSU, e.g. PS-1204ST, PS-130WP, available at option

IR-28PLATE

Order No. 19.1260

IP55

LED infrared floodlight, for the use in surveillance systems with cameras suitable for infrared.
- Ideally suited for the hidden surveillance in entrance areas
- Aperture angle: 160°, operating range: 3.5m max.
- Especially flat weatherproof housing with cutout (ø 20mm) for an unobtrusive mounting of the camera behind the floodlight
- LED matrix as light source
- Matching regulated PSU, e.g. PS-12CCD, available at option

Model	IRU-98/60	IR-98LED	IRU-56/60	IR-56LED	IR-12/65LED	IR-28PLATE
Power supply	12V⎓/1.1A	12V⎓/1.1A	12V⎓/600mA	12V⎓/600mA	12V⎓/1A	12V⎓/400mA
IR wave range	940nm	880nm	940nm	880nm	850nm	940nm
Lighting hours	approx. 10,000h	approx. 10,000h	approx. 10,000h	approx. 10,000h	approx. 10,000h	approx. 10,000h
Radiation angle	60° (hor.) x 40° (vert.)	60° (hor.) x 40° (vert.)	60° (hor.) x 40° (vert.)	60° (hor.) x 40° (vert.)	65°	160°
Range	approx. 17m	approx. 25m	approx. 13m	approx. 18m	approx. 10-12m	approx. 3.5m
Protective class	IP66	IP66	IP66	IP66	IP65	IP55
Admiss. ambient temp.	-30 °C to +40 °C	-30 °C to +40 °C	-30 °C to +40 °C	-30 °C to +40 °C	-10 °C to +50 °C	-30 °C to +40 °C
Dimensions	110x100x55mm	110x100x55mm	98x76x42mm	98x76x42mm	82x65x60mm	106x72x6mm
Weight	750g	750g	400g	400g	400g	100g

IR Floodlights

The use of infrared light (IR) in the video surveillance becomes more and more important. For this purpose, external floodlights or floodlights which are integrated into a camera can be used. With these floodlights it is now possible to achieve usable B/W recordings even in total darkness.

Requirements made on the camera
IR floodlights can be used together with B/W cameras or colour cameras with day/night switching. Sole colour cameras cannot be used, because they suppress the IR light with a suppression filter. The IR suppression filter is used to prevent overexposure caused by the high rate of infrared in the sunlight in case of strong solar radiation. With current day/night cameras, this filter will mechanically be moved from the beam during the switching process.

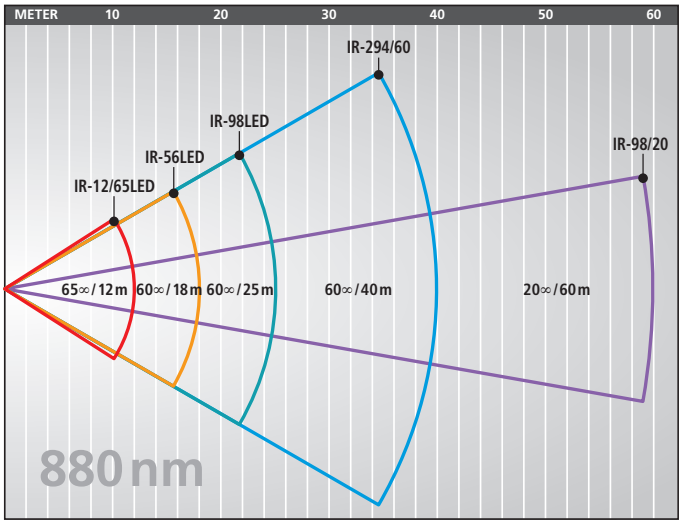
The sensitivity of a camera is generally greatly reduced in the IR range. Compared with standard sensors, cameras with a built-in EXVIEW image sensor feature a clearly higher sensitivity in the IR range.

In order to ensure a higher reliability of the illumination, it is useful to plan with only half of the max. operating range.

Operating range and radiation angle of IR floodlights
The operating range depends on different factors. The most important one is the reflection capability of the illuminated surfaces. In case no light is reflected, the camera cannot display any visual contents.

In order to achieve a perfect result, the radiation angle of the IR floodlight and the focal length of the lens must be matched to each other.

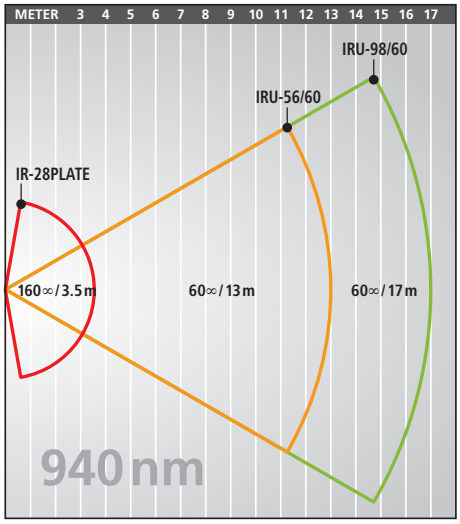
If a floodlight (wide radiation angle) is used together with a telelens (large focal length), the picture may be too dark. Vice versa, a spotlight (small radiation angle) causes a bright spot in the picture when used with a wide angle lens (small focal lens).



Different wavelengths
IR floodlights are offered with IR light of different wavelengths. In this connection, they are also called discrete and semi-discrete floodlights. The infrared light is generally invisible to the human eye. However, when the infrared light is created, there is always a little light visible in the red area. It is such a small amount, it is only visible if we look directly into the floodlight. These semi-discrete floodlights with a wavelength of 880 nm then merely glow red.

The longer the wavelength of the IR light, the greater the distance from the visible red light and the weaker this effect becomes. With discrete floodlights with a wavelength of 940nm, there is no light visible anymore. These floodlights are completely black, even in darkness.

The sensitivity of the cameras for IR light decreases with increasing wavelength. That is the reason why the floodlights featuring a wavelength of 940nm, but otherwise of the same design, seem to have a smaller operating range than the floodlights with 880nm. If total invisibility is not required, floodlights with 880nm should be used.



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TVG-200

Order No. 19.1810

IP66

Outdoor camera housing

- Built-in heating (230V)

Model	TVG-200
Inside dimensions	65x70x180mm
Outside dimensions	108x100x320mm
Protective class	IP66
Power supply	230V~/50Hz/40VA
Weight	1.5kg
Matching sunshield	TVG-203
Matching camera PSU	TVG-200PS

TVG-203

Order No. 19.1820

Sunshield, for housing TVG-200.

TVG-200PS

Order No. 19.1830

Camera PSU, for mounting into outdoor housings TVG-200, TVG-700.

- Input voltage: 230V~/50Hz/10VA
- Output voltage: 12V⎓/400mA
- Dimensions: 82x38x73mm
- 380g

TVG-400

Order No. 19.0450

IP66

Outdoor housing

- Built-in heating (230V)

Model	TVG-400
Inside dimensions	140x90x295mm
Outside dimensions	150x140x430mm
Protective class	IP66
Power supply	230V~/50Hz/40VA
Weight	4.3kg
Matching sunshield	TVG-404
Matching camera PSU	TVG-400PS

TVG-404

Order No. 19.0460

Sunshield, for housing TVG-400.

TVG-400PS

Order No. 19.1690

Camera PSU, for mounting into outdoor housings TVG-400, TVG-900.

- Input voltage: 100-240V~/50-60Hz/15VA
- Output voltage: 12V⎓/1.25A
- Dimensions: 72x48x32mm
- 110g

TVG-700

Order No. 19.3450

IP66

Outdoor housing, for cameras.

- Built-in heating (230V)
- Matching camera PSU TVG-200PS

Model	TVG-700
Inside dimensions	70x80x185mm
Outside dimensions	135x108x325mm
Protective class	IP66
Power supply	230V~/50Hz/40VA
Weight	2.2kg
Matching sunshield	TVG-703
Matching camera PSU	TVG-200PS

TVG-703

Order No. 19.3460

Sunshield, for housing TVG-700.

TVG-900

Order No. 19.9530

IP66

Outdoor camera housing

- UV-resistant polycarbonate version
- Built-in heating (230V)
- Slidable sunshield
- Side opening for easy mounting of camera and for maintenance
- Matching camera PSU TVG-400PS

Model	TVG-900
Inside dimensions	70x70x270mm
Outside dimensions	155x113x466mm
Protective class	IP66
Power supply	230V~/50Hz/40VA
Weight	1.4kg
Matching sunshield	supplied
Matching camera PSU	TVG-400PS

TVG-1000

Order No. 19.9560

IP68

Outdoor camera housing, especially suitable for applications in environmental conditions which are developing corrosion.

- Waterproof stainless steel version
- Two high-strength cable glands (13.5) for external connections
- Built-in heating (230V)
- Incl. sunshield

Model	TVG-1000
Inside dimensions	88x86x340mm
Outside dimensions	174x164x460mm
Protective class	IP68
Power supply	230V~/50Hz/40VA
Weight	6.5kg
Matching sunshield	supplied
Matching camera PSU	TVG-1000PS

TVH-1000

Order No. 19.9570

Bracket for outdoor camera housing, turnable and tiltable

- Stainless steel version
- Wall mounting
- Load: 45kg
- Length: 390mm
- For TVG-1000

TVG-1000PS

Order No. 19.9580

Camera PSU, for mounting into outdoor housing TVG-1000.

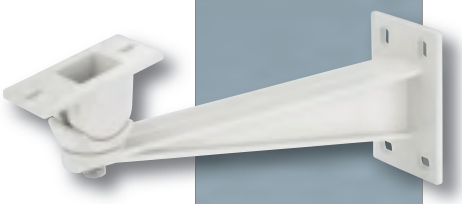
- Input voltage: 100-240V~/50-60Hz/15VA
- Output voltage: 12V⎓/1.25A
- Dimensions: 80x50x68mm
- 230g

TVH-600

Order No. 19.1840

Bracket for outdoor camera housing, turnable and tiltable

- Wall mounting
- Load: 25kg
- Length: 285mm
- For TVG-400/-900

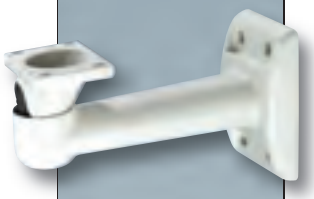


TVH-620

Order No. 19.1860

Bracket for outdoor camera housing, turnable and tiltable

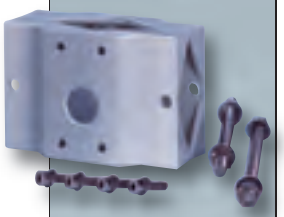
- Injection-moulded aluminium version
- Wall mounting
- Internal cable run
- Load: 25kg
- Length: 204mm
- For TVG-900



TVH-660

Order No. 19.1910

Pole mount, for tube diameter 65-110mm.
Accessory for brackets TVH-600, TVH-610 and TVH-620.



TVH-670

Order No. 19.9590

Bracket for outdoor camera housing, turnable and tiltable

- Aluminium version
- Mounting on parapets and side rails (floor mounting)
- Load: 15kg
- Length: 235mm
- For TVG-162/-200/-400/-700/-900

TVH-240/SW

Order No. 19.2240

TVH-240/WS

Order No. 19.2250

Camera brackets, black (SW) or white (WS).

- Wall mounting/ceiling suspension
- Length: 63mm
- Weight: 85g
- 6.3mm (¼") thread, movable and tiltable

TVH-260/AL

Order No. 19.0950

Camera bracket

- Wall mounting/ceiling suspension
- Robust aluminium version
- Length: 70mm
- Weight: 60g
- 6.3mm (¼") thread, movable and tiltable

TVH-610

Order No. 19.1850

Bracket for outdoor camera housing, turnable and tiltable

- Wall mounting
- Load: 25kg
- Length: 205mm
- For TVG-200/-700

TVH-640

Order No. 19.1880

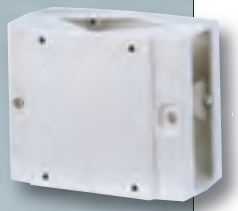
Bracket for outdoor camera housing, turnable and tiltable

- Ceiling suspension
- Load: 15kg
- Length: 390mm
- For TVG-200/-400/-700/-900

TVH-665

Order No. 19.1990

Pole mount, for tube diameter 80-150mm.
Accessory for bracket TVH-700.

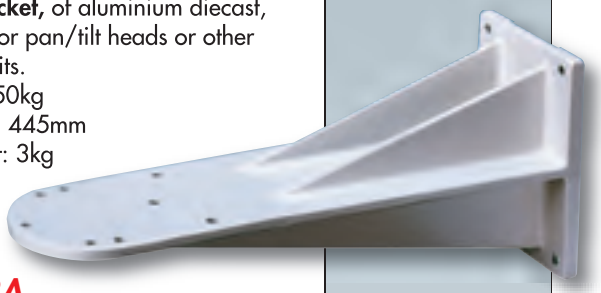


TVH-700

Order No. 19.2000

Wall bracket, of aluminium diecast, suitable for pan/tilt heads or other heavy units.

- Load: 50kg
- Length: 445mm
- Weight: 3kg



TVH-8A

Order No. 19.6400

Camera bracket

- Wall mounting/ceiling suspension
- Length: 80mm
- Weight: 85g
- 6.3mm (¼") thread, movable and tiltable

TVH-14A

Order No. 19.6390

Camera bracket

- Wall mounting/ceiling suspension
- Length: 140mm • Weight: 110g
- 6.3mm (¼") thread, movable and tiltable

TVH-250/SW

Order No. 19.0960

Camera bracket

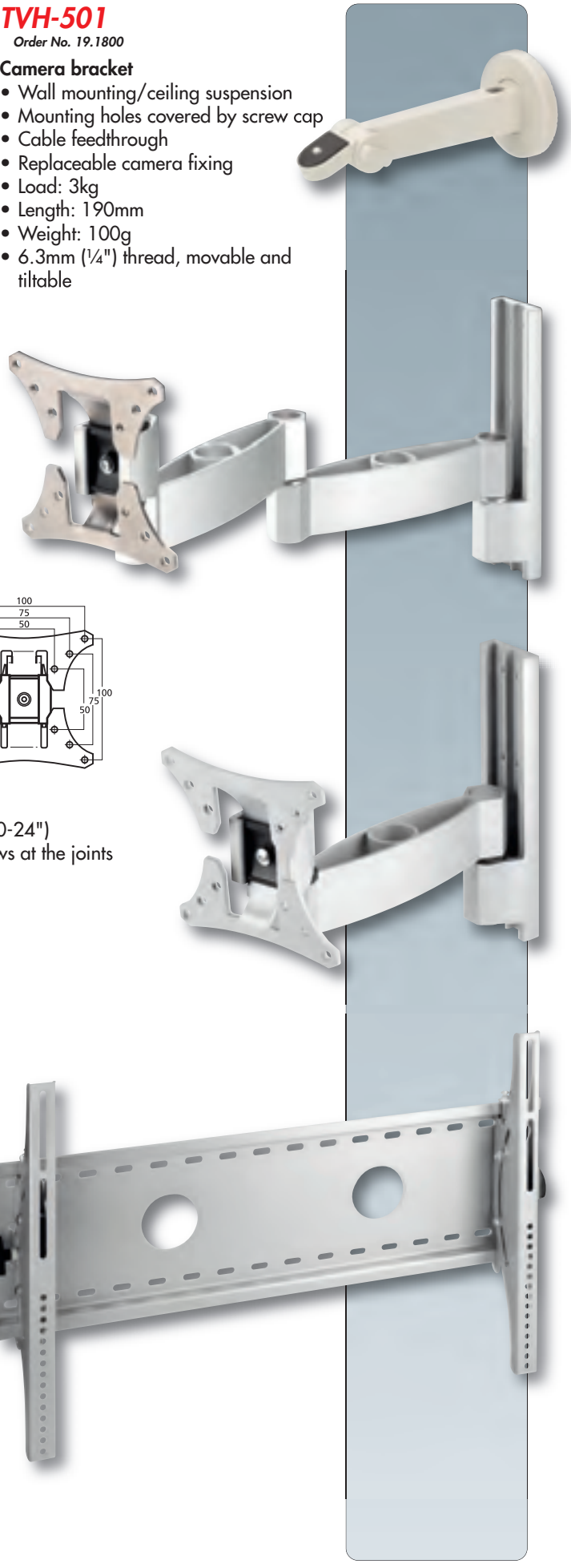
- Wall mounting/ceiling suspension
- Black lacquered metal version
- Length: 90mm
- Weight: 80g
- 6.3mm (¼") thread, movable and tiltable

TVH-501

Order No. 19.1800

Camera bracket

- Wall mounting/ceiling suspension
- Mounting holes covered by screw cap
- Cable feedthrough
- Replaceable camera fixing
- Load: 3kg
- Length: 190mm
- Weight: 100g
- 6.3mm (¼") thread, movable and tiltable



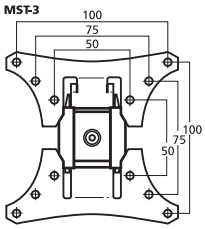
MST-2

Order No. 19.0090

Wall support for LCD monitors

- VESA50 standard, VESA75 standard, VESA100 standard
- Stable aluminium version
- Movable extension arm with 3 joints, length: 38cm max.
- Tiltable mounting plate (10°)
- Suitable for LCD monitors with a diagonal screen size of 25-61cm (10-24")
- Supplied with wall mounting auxiliaries and locking spanner for screws at the joints
- Max. load: 10kg
- Own weight: 1.3kg

Please use safety rope.



MST-3

Order No. 18.1750

Wall support for LCD monitors

- VESA50 standard, VESA75 standard, VESA100 standard
- Stable aluminium version
- Movable extension arm with 2 joints, max. length: 23.5cm
- Tiltable mounting plate (10°)
- Suitable for LCD monitors with a diagonal screen size of 25-61cm (10-24")
- Supplied with wall mounting auxiliaries and locking spanner for screws at the joints
- Max. load: 10kg
- Own weight: 1.1kg

Please use safety rope.

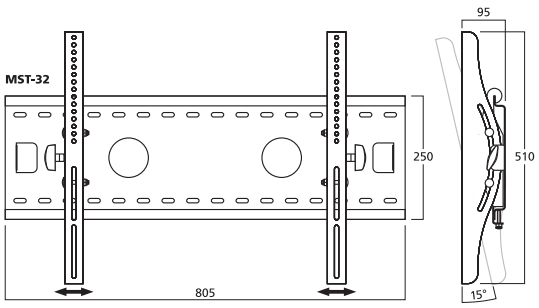
MST-32

Order No. 18.1760

Wall support for large flat-panel LCD monitors

- Stable metal version
- Adjustable tilting angle up to 15°
- Autolock support
- Suitable for LCD monitors with a diagonal screen size of 76-122cm (30-48")
- Distance to wall: 76mm
- Max. load: 50 kg
- Own weight: 4.2kg

Please use safety rope.



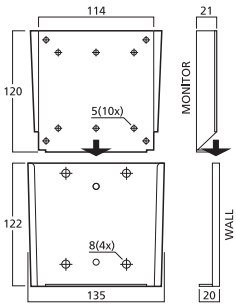
MST-10

Order No. 18.1130

Wall support for LCD monitors, also suitable for mounting speaker systems to a wall.

- VESA75 standard, VESA100 standard
- Mounting plate for monitor can be removed, to be secured with screws
- Silver lacquered metal version
- Suitable for LCD monitors with a diagonal screen size of 25-61cm (10-24")
- Supplied with screws for securing the monitor and mounting screws for 10mm wall plugs (please use suitable wall plugs for the respective wall material, to be purchased separately)
- Max. load: 10kg
- Own weight: 590g

Please use safety rope.



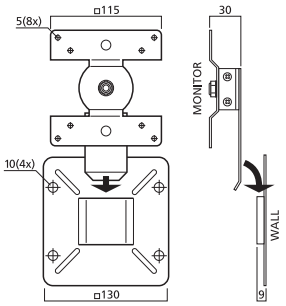
MST-12

Order No. 18.1140

Wall support for LCD monitors

- VESA75 standard, VESA100 standard
- Mounting plate for monitor can be removed
- Silver lacquered metal version
- Suitable for LCD monitors with a diagonal screen size of 25-61cm (10-24")
- Supplied with screws for securing the monitor and mounting screws for 10mm wall plugs (please use suitable wall plugs for the respective wall material, to be purchased separately)
- Max. load: 6kg
- Own weight: 530g

Please use safety rope.



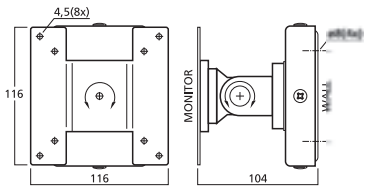
MST-14

Order No. 18.1150

Wall support for LCD monitors

- VESA75 standard, VESA100 standard
- Tiltable
- Silver lacquered metal version
- Suitable for LCD monitors with a diagonal screen size of 25-61cm (10-24")
- Supplied with screws for securing the monitor and mounting screws for 10mm wall plugs (please use suitable wall plugs for the respective wall material, to be purchased separately)
- Max. load: 5kg
- Own weight: 910g

Please use safety rope.



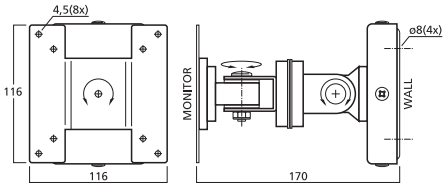
MST-16

Order No. 18.1160

Wall support for LCD monitors

- VESA75 standard, VESA100 standard
- Tiltable and movable
- Silver lacquered metal version
- Suitable for LCD monitors with a diagonal screen size of 25-61cm (10-24")
- Supplied with screws for securing the monitor and mounting screws for 10mm wall plugs (please use suitable wall plugs for the respective wall material, to be purchased separately)
- Max. load: 5kg
- Own weight: 1.1kg

Please use safety rope.



VPT-311

Order No. 19.6370

IP66

Pan/tilt head, for outdoor and indoor mounting.

VPT-50

Order No. 19.6380

Pan/tilt head, for indoor mounting.

Model	VPT-311	VPT-50
Power supply	24V~/290mA	24V~/290mA
Load	12kg max., balanced	5kg max., balanced
Turning speed	hor. 6°/sec., vert. 3°/sec.	hor. 6°/sec., vert. 3°/sec.
Rotating angle	hor. 360°, vert. 360°	hor. 360°, vert. 90°
Limiting switch	internally adjustable	internally adjustable
Admiss. ambient temp.	-20 °C to +60 °C	0-40 °C
Protective class	IP66	IP30
Mounting	upright or hanging	upright or hanging
Mounting location	outdoors, indoors	indoors
Dimensions	180x166x145mm	190x230x120mm
Weight	3.5kg	2.4kg
Other features	automatic pan	automatic pan

PTL-124

Order No. 19.3710

Control unit, for pan/tilt heads and motor zoom lenses.

- Integrated PSU for pan/tilt motors: 24V~/400mA
- Integrated PSU for zoom: 12V⎓/300mA
- Integrated camera PSU: 12V⎓/500mA, camera connection via coded 6-pole connector block
- Operation via toggle switch
- Automatic panning control, switchable
- Connection and power supply of the pan/tilt head is made via coded 6-pole connector block
- Admissible ambient temperature: 0-40 °C
- Power supply: 230V~/50Hz/20VA
- Dimensions: 222x50x230mm
- Weight: 1.7kg

Video Surveillance at a Petrol Station

The surveillance at a petrol station is divided into different areas. Each of these areas has particular requirements which have to be met.

Petrol pumps
Above all, the number plates of the motor vehicles are to be recognised in this case. For this purpose, the camera is located at a distance from the motor vehicles. Lenses with large focal lengths are required here in order to obtain a respectively small picture detail.

Outside areas
These areas, e.g. washing areas or side entries can be monitored with wide angle lenses because in this case a large area is to be viewed at the same time.

Sales area
Effective viewing angles can be obtained with mini dome cameras at the ceiling, without having an irritating effect on the customers. A camera with adjustable focal length facilitates the search for the best viewing angle.

Adjoining rooms
Like storage rooms, etc.; in this case, simple cameras can achieve very good results. In order to monitor immediately accessible areas, the cameras have to be mounted accordingly.

The digital recorder **DMR-416** then records everything. Apart from the high recording capacity, this recorder also features several monitor outputs which allow the display of different camera pictures. Remote access to both the live pictures and the recordings is also possible due to the facility of network connection. The exchangeable hard disks allow archiving without any problems, even of longer periods of time.

DMR-416

Camera 1–8

TVCCD-623COL	camera
VG-550AS	lens
TVG-700	outdoor housing
TVH-640	ceiling bracket

Alternatively the autozoom camera VCCXZ-600P can also be used for this unit.

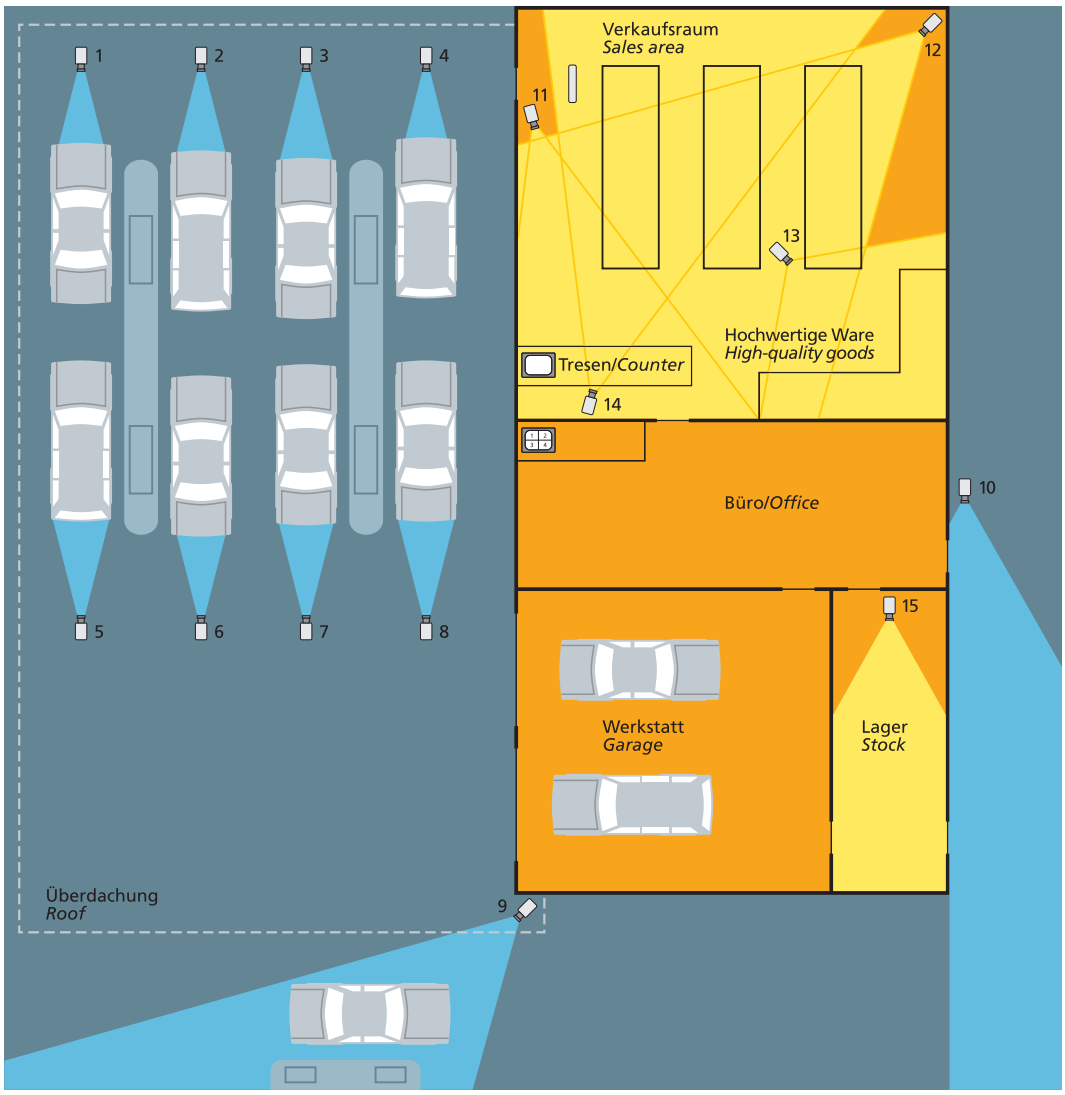
Camera 9 + 10

TVCCD-623COL	camera
VZLCS-814D	lens
TVG-700	outdoor housing
TVH-600	wall bracket

Camera 11–14
TVCCD-1706COL mini dome camera

Camera 15
TVCCD-180COL compact camera

The cameras 11–15 can jointly be supplied with power by a single PSU PS-414.



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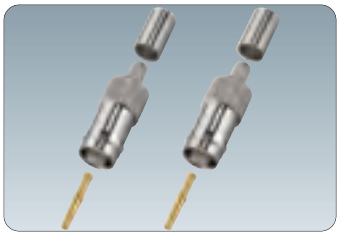
UG-88/UCR
Order No. 34.3300

UG-88/UCR58
Order No. 34.2880

BNC crimp plugs
- Teflon insulation
- Centre pin for crimping

UG-88/UCR = 75Ω
UG-88/UCR58 = 50Ω



BNC-88/UCR
Order No. 34.7240

BNC-88/UCR58
Order No. 34.7250

BNC crimp inline jacks
- Teflon insulation
- Centre pin for crimping

BNC-88/UCR = 75Ω
BNC-88/UCR58 = 50Ω

UG-88RA
Order No. 34.2020

Right angle BNC plug, 50Ω.
- For cable RG-58
- Centre pin with screw connection

BNC-88RA
Order No. 34.7260

Right angle BNC inline jack
- For cable RG-58
- Centre pin with screw connection

UG-88/S
Order No. 34.8360

UG-88/S58
Order No. 34.8370

BNC screw plug adapters, suit. for cables with rigid internal conductor.
UG-88/S 6mm Ø for RG-59
UG-88/S58 5mm Ø for RG-58

FCH-20
Order No. 06.2420

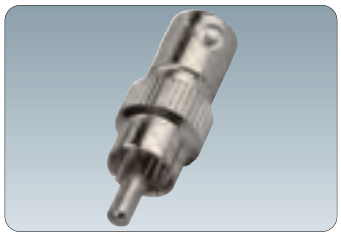
Adapter F-screw jack/BNC plug
Suitable for 75Ω antenna cable with rigid internal conductor.

T-708G/SW
Order No. 34.1730

RCA plug, gold-plated.
- Cable bending protection
- For cable ø: 7mm

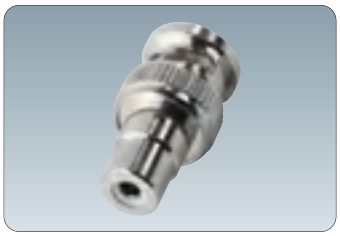
VAU-4
Order No. 06.4660

Audio/video SCART adapter
SCART to 3 RCA jacks (video and audio L/R), additional S-VHS jack. Switchable "IN"/"OUT".



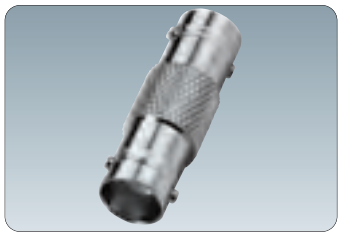
NC-1524
Order No. 06.0970

Adapter BNC jack/RCA plug



BNC-1523
Order No. 06.0100

Adapter BNC plug/RCA jack



UG-914/U
Order No. 34.2040

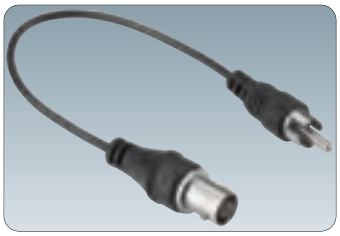
BNC inline jack

UG-306/U
Order No. 34.1980

BNC plug, with BNC jack, right angle, turnable, 50Ω.

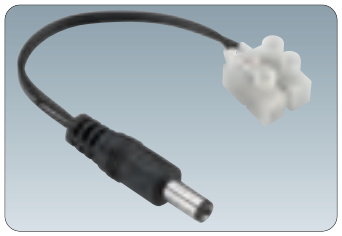
BNC-1526
Order No. 06.3420

BNC chassis adapter, 75Ω
- BNC jack/RCA jack
- Mounting hole: ø 12mm



BNC-1515
Order No. 08.0210

Video cable adapter
- BNC jack to RCA plug
- For use in confined spaces
- Length: 15cm



DCA-10
Order No. 08.0230

Power supply connection cable, for quickly installing e.g. surveillance cameras. Fitted with low-voltage plug ø 5.5/ø 2.1mm and luster terminal and polarity identification.

CAT-5C
Order No. 08.0220

Cat. 5 dual inline jack, for extending Cat. 5 network cables as desired. Fitted with RJ45 jacks on both ends, fully wired (all 8 poles).

CAT-5100UTP

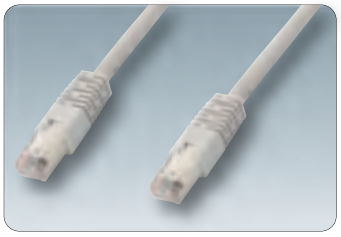
Order No. 06.1260

Cat. 5E installation cable, 125MHz UTP, grey, rigid, for network applications.

- 100m reel
- ø 6mm
- 4 x (2 x 0.14mm²)
- Without screening

Cat. 5E Network Cables, 100MHz S/FTP

- Grey, different lengths
- Double screening
- RJ45 plug with moulded cable support sleeve
- Configuration acc. to EIA/TIA 568



Model	Order No.	Length	Colour	Other features
CAT-505	06.6500	0.5m	grey	Cat. 5E (100Mbits/sec.)
CAT-51	06.6510	1m	grey	Cat. 5E (100Mbits/sec.)
CAT-53	06.6520	3m	grey	Cat. 5E (100Mbits/sec.)
CAT-55	06.6530	5m	grey	Cat. 5E (100Mbits/sec.)
CAT-510	06.6980	10m	grey	Cat. 5E (100Mbits/sec.)
CAT-520	06.6990	20m	grey	Cat. 5E (100Mbits/sec.)
CAT-550	06.7000	50m	grey	Cat. 5E (100Mbits/sec.)

VSC-152/SW

Order No. 15.0570

VSC-502/SW

Order No. 50.5150

Combined video cables

- 75Ω coaxial cable, bunched internal conductor: ø 0.6mm, attenuation: 2.5dB/100m (5MHz)
- 2 x 0.75mm², e.g. for the power supply (max. 48V) of CCTV cameras
- Highly flexible version

VSC-152/SW: 150m reel
VSC-502/SW: 500m reel

Video Coaxial Cables, 75Ω.

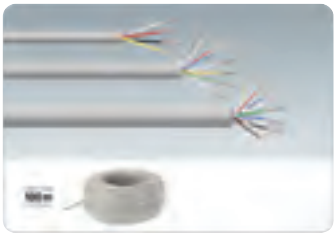
- 100m reel or 200m reel
- ø 6.0mm
- Highly flexible due to bunched internal conductor: ø 0.6mm
- Braided copper screen
- Attenuation (100m): 2.8dB/5MHz

Model	Order No.	Length	Colour
VCC-59	15.0320	100m reel	green
VCC-59/SW	15.0530	100m reel	black
VCC-59/WS	15.0310	100m reel	white
VCC-259/SW	15.0560	200m reel	black

Signal Cables

For alarm, PA and communication technology.

- 100m coil
- Type J-Y(St)Y acc. to VDE 0815
- Common foil screen
- Copper wires, coloured insulation, ø 0.6mm



Model	Order No.	Position	Cores	Outside diameter
JYSTY-2206	19.2310	A	4	ø 5.5mm
JYSTY-4206	19.2320	B	8	ø 6.5mm
JYSTY-6206	19.2330	C	12	ø 7.5mm

Speaker Cables

"STANDARD QUALITY"

- 100m reel
- Core coding

Model	Order No.	Cores	Outside dimensions	Colour
SPC-75/SW	06.5230	2 x 0.75mm²	2 x ø 2.4mm	black
SPC-75/WS	06.5240	2 x 0.75mm²	2 x ø 2.4mm	white

BNC Connection Cables

- 75Ω connection cable RG-59/U
- 2 x BNC plug

Model	Order No.	Length	Version
BNC-050	08.0140	0.5m	nickel-plated
BNC-100	08.0020	1m	nickel-plated
BNC-100G	08.0030	1m	gold-plated
BNC-300	08.0120	3m	nickel-plated
BNC-300G	08.0130	3m	gold-plated
BNC-1000	08.0180	10m	nickel-plated
BNC-2500	08.0190	25m	nickel-plated
BNC-5000	08.0200	50m	nickel-plated

VEC-200

Order No. 06.2890

VEC-200G

Order No. 06.2900

Video RF cables, 75Ω, 2m, BNC and RCA connectors.

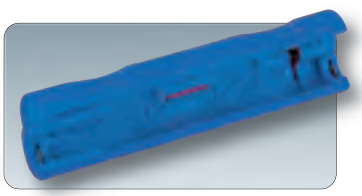
VEC-200 = nickel-plated connectors
VEC-200G = gold-plated connectors

CT-10

Order No. 31.1680

Multi-purpose crimping tool

- For connections: F-standard, BNC, TNC, N, optical connectors and network connections
- 6 different crimping sizes



CST-2

Order No. 31.1500

Stripping tool for coaxial cables, handy tool for standard coaxial cables ø 4.8-7.5mm. The cables are stripped and ready for connection in just a few steps. Also suitable for flexible cables like 3 x 0.75mm², 10mm² and 16mm².

Alarm Systems

Today, both sales rooms and private households are more and more secured by electronic alarm systems.

Two methods are used: apart from the classic wired alarm system where each alarm device is connected to an alarm lead, wireless alarm systems are used, too. At such systems, the alarm device is connected to the alarm centre via radio contact. The alarm device transmits a special code in order to achieve a high safety level against tampering of the radio contact. Only if the alarm centre receives the code which has been learned at the installation, an alarm is triggered. The alarm device is almost solely operated via built-in long-life batteries, thus almost no wiring is required. This is particularly important in private households, because the experience shows that an alarm system is in most cases retrofitted after a house has been built or the renovation of a flat has been finished. The transmission range of the transmitter is quite high and thus an alarm centre can be installed in adjoining rooms. The few leads which are required for power, outdoor siren, and maybe a telephone dialling unit are usually not a problem in such rooms.

There are different methods for securing an object.

Indoor protection
Individual or all rooms of a building are secured by motion detectors. If the alarm centre has been activated, none of the rooms can be entered without triggering an alarm. This method is always required if a person would be able to hide inside the building before the alarm system has been activated.

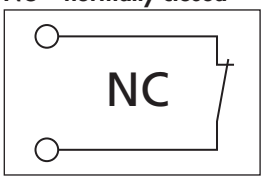
Peripheral protection
This method is generally used for dwelling houses. All entries to the house, like windows and doors are secured by contacts. Thus, it is possible to activate the alarm system and at the same time move freely inside the house. By attaching the contacts to windows and doors, the alarm is already triggered when these have only been opened approx. 2 cm. If the contacts are attached to the bottom of the window, it is even possible to tilt the window for fresh air without deactivating the alarm system.

Full protection
This is a combination of both methods mentioned above. Light barriers for outdoor applications or video motion detection can additionally be used which present further safety elements.

NOTE: Some alarm systems, e.g. MAX-20MC, make acknowledgement signals when they are activated or deactivated. If the alarm centre is installed in adjoining rooms or in the cellar, the system can hardly be heard if activated from the outside. In this case, it is recommended to install a basic buzzer which is connected in parallel to the internal buzzer of the alarm centre.

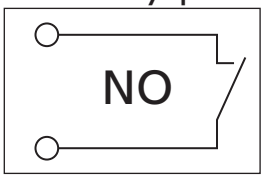
NC, NO, stand-by loop
In connection with the inputs of a wired alarm centre, the terms NC contact, NO contact as well as stand-by loop are mentioned time and again. These terms describe the switching behaviour in case of an alarm.

NC = normally closed



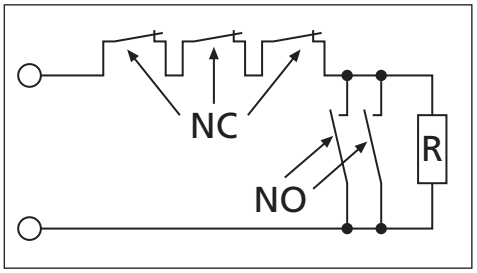
Normally closed contact
This is a contact which is normally closed in stand-by mode.
An alarm is triggered when this contact is opened.
All contacts within a loop are connected in parallel.
Disadvantage of an NC contact: If the alarm lead is short-circuited, all contacts behind the short circuit are ineffective.

NO = normally open



Normally open contact
This is a contact which is normally opened in stand-by mode.
An alarm is triggered when this contact is closed.
All contacts within a loop are connected in parallel.
Disadvantage of an NO contact: If the alarm lead is disconnected, all contacts are ineffective.

Stand-by loop
The alarm leads of sole NC or NO loops can easily be tampered with and thus modern alarm systems feature stand-by loops which use an additional resistor (R) in order to monitor the status of the alarm contacts. This resistor is connected to the alarm lead at the spot furthest away.

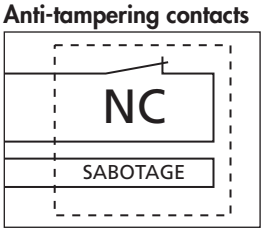


In stand-by mode: all NO contacts are open and all NC contacts are closed, the resistor is connected directly to the input.

The alarm centre registers the value and the deviation from the desired value. If the value at the connections is outside the tolerance threshold, e.g. when an NO contact is closed (short circuit) or when an NC contact is open (disconnection), an alarm is triggered.

Thus it is ensured, that a disconnection or a short circuit of an alarm lead triggers an alarm after activating the alarm centre.

Anti-tampering contacts



Additional anti-tampering loops are connected in order to recognise a tampering at the motion detectors or leads immediately. These are wire loops or e.g. cover contacts of motion detectors which are connected in parallel.
These contacts are connected to a special loop of the alarm centre which cannot be activated; i.e. this input monitors these anti-tampering loops 24 hours a day. If a motion detector is opened or a lead is tampered with, an anti-tampering alarm is triggered; independently of the alarm centre being active or inactive.

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MAX-20MC

Order No. 04.2270

Wireless alarm centre

- 20 loops, three of them can be wired simultaneously
- Silent alarm of the 24-hour loop possible
- Built-in PSU with charging electronics for lead gel battery
- Tamper detection
- 2 alarm relays for siren and strobe light
- Connection for telephone dialling unit
- 12V DC voltage output for additional unit and detector
- Screw terminals
- Wireless or wired activation and deactivation of the alarm possible

Please order matching rechargeable battery NPA-12/7 together with this unit.

Model	MAX-20MC
Alarm loops wireless	20
Alarm loops wired	3
Carrier frequency	433.92MHz
Coding	24 bits
Monit.of ext.wireless oper.	from 30 sec. acoustically
Entry delay	15/30/60/90/120 seconds
Exit delay	15/30/60/90/120 seconds
Alarm duration siren	3 minutes fixed
Alarm duration strobelight	until deactivation
Output for sensor	12V⎓/1A
Contact rating	500mA
Admiss. ambient temp.	0-45 °C
Power supply	230V~/50Hz/20VA
Dimensions	235x317x90mm
Weight	1.9kg

MCR-304

Order No. 04.2300

1-channel wireless receiver, for versatile remote control options.

- Matching all transmitters of the MCT-... and NEXT-.. series
- Level display of the received signal via LED
- Anti-tamper switch
- Floating relay change-over contact
- Up to 10 transmitters can be programmed

Model	MCR-304
Coding	24 bits
Carrier frequency	433.92MHz
Channels	1
Max. range	-
Transmitting cycle	-
Admiss. ambient temp.	0-50 °C
Power supply	12V⎓/7mA, max. 40mA
Dimensions	110x63x25mm
Weight	70g
Connections	screw connections
Other features	

MCT-100
Order No. 04.2320

2-channel universal transmitter, for the connection of cable-connected NC/NO contacts.
- Matching MAX-20MC and the receiver MCR-304
- Anti-tamper switch
- 2 inputs, independent of each other
- Inputs can be switched as series/parallel loops or NC loops

MCX-600
Order No. 04.2470

Signal repeater, for increasing the transmission range.
- Matching the transmitters for MAX-20MC
- Up to 16 repeaters can be combined
- Anti-tamper switch
- Emergency power supply via 9V battery (not in the scope of delivery)

MCT-302
Order No. 04.2410

Wireless reed contact, with integrated transmitter and additional input.
- Matching MAX-20MC and the receiver MCR-304
- For securing doors, windows and other movable objects
- Surface mounting or flush mounting
- External contact can be connected

Model	MCT-100	MCX-600	MCT-302
Coding	24 bits	24 bits	24 bits
Carrier frequency	433.92MHz	433.92MHz	433.92MHz
Channels	2 x alarm	-	-
Max. range	150m	150m	150m
Transmitting cycle	2 sec. transmission	2 sec. transmission	2 sec. transmission
Admiss. ambient temp.	0-50 °C	0-50 °C	0-50 °C
Power supply	3V lithium battery	12V⎓/100mA	3V lithium battery
Dimensions	110x63x25mm	110x63x25mm	81x22x235mm
Weight	68g	73g	34g + 13g (magnet)
Connections	screw terminal strip	-	for external contact
Other features	batt. type: CR-2		batt. type: CR-2

NEXT-MCW
DIGITAL
Order No. 04.2840

PIR motion detector, with integrated transmitter.
- Matching the alarm centre MAX-20MC and the receiver MCR-304
- Lenses can be changed
- Microprocessor-controlled
- Detection zone: 12x12m, 90°
- Pulse counter for preventing false alarms
- Anti-tamper switch, walk test (switchable)
- Matching brackets BR-1 and BR-3 are available at option

NEXT-985MCW
DIGITAL
Order No. 04.2830

PIR motion detector (pet-immune), with integrated transmitter.
- Matching the alarm centre MAX-20MC and the receiver MCR-304
- Lenses can be changed
- Microprocessor-controlled
- Detection zone: 12x12m, 90°
- Pulse counter for preventing false alarms
- Pet immunity function (up to 38kg) for preventing false alarms
- Anti-tamper switch, walk test (switchable)
- Matching brackets BR-1 and BR-3 are available at option

K-980MCW
DIGITAL
Order No. 04.2260

Infrared motion detector, with integrated transmitter.
- Matching the alarm centre MAX-20MC and the receiver MCR-304
- Microprocessor-controlled
- Detection zone: 12x12m, 90°
- Pulse counter for preventing false alarms
- Pet immunity function (up to 36kg) for preventing false alarms
- Anti-tamper switch, walk test (switchable)
- Supplied with bracket for wall mounting or ceiling suspension

Model	NEXT-MCW	NEXT-985MCW	K-980MCW
Coding	24 bits	24 bits	24 bits
Carrier frequency	433.92MHz	433.92MHz	433.92MHz
Channels	-	-	-
Max. range	150m	150m	150m
Transmitting cycle	2 sec. transmission	3 sec. transmission	3 sec. transmission
Admiss. ambient temp.	0-50 °C	0-50 °C	0-50 °C
Power supply	3V lithium battery	3V lithium battery	3V lithium battery
Dimensions	64x95x53mm	64x95x53mm	65x117x47mm
Weight	70g	70g	112g
Connections	-	-	-
Other features	batt. type: CR-123A	batt. type: CR-123A	batt. type: CR-2

MCT-425

Order No. 04.2870

Optical smoke alarm, with integrated transmitter.

- Matching MAX-20MC and the receiver MCR-304
- Monitoring of the smoke density with light barrier
- Additional alarm indication via internal buzzer
- With battery status indication/monitoring
- Incl. bracket for ceiling suspension

MCT-234

Order No. 04.2400

4-channel hand-held transmitter, as key pendant.

- Matching MAX-20MC and the receiver MCR-304
- Universal use as wireless remote control for activating various functions
- In combination with MAX-20MC, the 4th channel can be programmed as aux control

Model	MCT-425	MCT-234
Coding	24 bits	24 bits
Carrier frequency	433.92MHz	433.92MHz
Channels	-	4
Max. range	150m	150m
Transmitting cycle	2 sec. transmission	2 sec. transmission
Admiss. ambient temp.	0-50 °C	0-50 °C
Power supply	9V battery (0.5µA)	12V alkaline battery
Dimensions	ø 170mm x 60mm	53x31x10mm
Weight	260g	18g
Connections	-	-
Other features	batt. type: LR-61	batt. type: A23

MCT-201AT

Order No. 04.2860

1-channel hand-held transmitter, as key pendant or necklace, splashproof.

- Matching MAX-20MC and the receiver MCR-304
- Universal use as wireless remote control for activating various functions
- With battery status indication/monitoring

MCT-211

Order No. 04.2380

1-channel hand-held transmitter, in wrist watch design, splashproof.

- Matching MAX-20MC and the receiver MCR-304
- Universal use as wireless remote control for activating various functions

MCT-104

Order No. 04.2850

4-channel hand-held transmitter

- Matching MAX-20MC and the receiver MCR-304
- Universal use as wireless remote control for activating various functions
- In combination with MAX-20MC, the 4th channel can be programmed as aux control
- With battery status indication/monitoring
- Incl. metal belt clip

Model	MCT-201AT	MCT-211	MCT-104
Coding	24 bits	24 bits	24 bits
Carrier frequency	433.92MHz	433.92MHz	433.92MHz
Channels	1	1	4
Max. range	150m	150m	150m
Transmitting cycle	2 sec. transmission	2 sec. transmission	2sec. transmission
Admiss. ambient temp.	0-50 °C	0-50 °C	0-50 °C
Power supply	3V lithium button cell	3V lithium button cell	3V lithium battery
Dimensions	40x61x18mm	length: 260mm	104x44x24mm
Weight	42g	25g	50g
Connections	-	-	-
Other features	batt. type: CR-2032	batt. type: CR-2025	batt. type: CR-2

DA-700

Order No. 04.2630

Alarm centre with 7 loops

- VdS (German assn. of property insurers) class A (G 197704)
- Microprocessor-controlled
- Series/parallel loop technique
- 6 loops for detectors. Adjustable functions: intrusion, delayed intrusion, anti-tampering, emergency call, 24-hours, disarmed for internal alarm, lock and door lock
- 1 fixed anti-tamper loop
- Alarm latching
- Menu-controlled operation, LCD with background illumination
- Connections for siren, strobe light and telephone dialling unit (e.g. DL-200)
- Connection facility for key switch and door lock

Please order matching rechargeable lead battery NPA-12/7 together with this unit.

DA-8000

Order No. 04.3060

Alarm centre with 8 loops and LCD control panel

- Microprocessor-controlled
- 8 loops, to be programmed as desired
- 1 anti-tamper loop
- One alarm output each for siren (max. 500mA) and flash (max. 250mA)
- Operation via English menu control, programming and display via remote LCD control panel
- 32-digit LCD with background illumination
- Connection of up to four LCD control panels to one alarm centre possible (optional LCD control panel: DA-8000RC)
- Programmable output for various features (e.g. telephone dialling unit DL-125CA)
- Alarm/event memory of up to 256 events max. (without date and time) or 64 events with date and time
- Maximum storage of up to 9 user codes
- Connection facility for key switch
- Instruction manual in 4 languages (D, GB, F, I)

Please order matching rechargeable lead battery NPA-12/7 together with this unit.

Model	DA-700	DA-8000
Power supply	230V~50Hz/10VA,	230V~/50Hz/50VA,
	12V⎓/1A	12V⎓/1A
Current consumption		
Stand-by	60mA	12V⎓/50mA
Alarm	1A max./24V⎓	dep. on signal devices connected
Entry delay	10-90 sec., adjustable	0-198 sec.
Exit delay	10-90 sec., adjustable	0-99 sec., or to be adjusted externally
Alarm duration	20-180 sec., adjustable	0-99 min.
Admiss. ambient temp.	0-55 °C	0-50 °C
Dimensions	360x330x85mm	250x195x75mm (alarm centre)
		90x115x25mm (control panel)
Weight	7.1kg	1.6kg

DA-8000RC

Order No. 04.3070

Additional **LCD control panel,**
for alarm centre DA-8000. English menu control.

DA-1002

Order No. 04.0970

Alarm centre with 2 loops, in a stable metal housing with anti-tamper switch and two loops (series/parallel operation) with terminating resistors, test loop for testing the alarm function, alarm buzzer and connection for glass break detectors. Separate exit delay switches for the two alarm circuits. LED displays for loops, delay, alarm and panic. Supplied with 4 keys.
Please order matching rechargeable lead battery NPA-12/3 together with this unit.

DA-996

Order No. 04.0190

Alarm centre with 7 loops, with 6 alarm circuits independent of each other, delayed or non-delayed, (to be adjusted as desired). 24-hour stand-by operation for panic/fire/siren with separate alarm output. Power supply with low consumption: 230V mains or 12V battery (battery not supplied). Loop status display with 6 LEDs and alarm latching of the loops. Alarm circuits in series and parallel loops with terminating resistors. The sheet steel housing with anti-tamper switch can be locked. Supplied with 4 keys.
Please order matching rechargeable lead battery NPA-12/7 together with this unit.

Model	DA-1002	DA-996
Power supply	230V~/50Hz/15VA, 12V⎓	230V~/50Hz/15VA, 12V⎓
Current consumption		
Stand-by	21mA	22mA
Alarm	55mA	400mA (1 horn)
Entry delay	1-60 sec., adjustable	1-60 sec., adjustable
Exit delay	1-90 sec., adjustable	60 sec.
Alarm duration	0-8 min, adjustable	1-8 min, adjustable
Admiss. ambient temp.	-10 °C to + 50 °C	-10 °C to +50 °C
Dimensions	212x282x80mm	290x268x80mm
Weight	3kg	

CT-1000

Order No. 04.2370

NEW.

Telephone dialling unit, with audio response.

- 4 alarm inputs, 4 alarm outputs, to be programmed as desired
- Up to 8 telephone numbers can be assigned to each alarm event
- Recording and reproduction of messages via integrated microphone and speaker
- Functions for answering machine and alarm clock
- Event memory
- The CT-1000 can be remote-controlled and remote accessed by entering the user code
- Automatic redialling
- German menu control, LC display

Model	CT-1000
Dialling method	tone dialling mode
Alarm inputs	4 x NO/NC/EOL
Quantity of teleph. numbers	8
Length of teleph. numbers	14 digits max.
Length of text messages	approx. 8 sec., for each storage
Redialling	8 times
Power supply	13.8V⎓/150mA (stand-by: 100mA)
Admiss. ambient temp.	0-40 °C
Dimensions	140x120x35mm
Weight	280g

IT-GSM

Order No. 04.3210

Telephone gateway, for analog telephone lines.
In case of an alarm, the IT-GSM ensures that a message can also be sent from a telephone dialling unit, like e.g. DL-200 or DL-125CA, if the existing telephone line has been tampered with and is thus not working. The unit is equipped with a GSM module.
A sim card with deactivated pin code request is required for operation. This card is not in the scope of delivery.

- Built-in dual band GSM interface
- Bidirectional dial-up
- Offset antenna with magnetic base and 2.8m antenna cable
- Anti-tamper switches in the cover and in the bottom of the housing
- LED display for field strength and function
- Outputs for status information
- Stable metal housing
- Power supply: 12V⎓/max. 600mA, stand-by: 35mA
- Rech. battery NPA-12/2 can be installed at option (not supplied)
- Admissible ambient temperature: 5-40 °C
- Dimensions: 320x220x83mm (w/o antenna)

Universal Applications of Dialling Units

Besides the classis siren and strobe light, an alarm system must nowadays often transfer a message to a telephone subscriber. For this purpose, automatic dialling equipment is used.
This equipment is abbreviated dialling units. They store voice messages and in case of an alarm send these to one or several previously stored telephone number(s). A subscriber must acknowledge this alarm actively, by e.g. entering a numerical code and can thus interrupt the alarm cycle. This is the standard application of such dialling units.

However, these units can also be used for much more universal applications. The dialling unit does not have to be controlled by an alarm system. A contact would already be sufficient to activate the unit, in the most basic case. Thus, it can be used for versatile applications.

In case a cooling or a circulation pump fails to operate correctly, the unit can send a warning. The units which are to be monitored only need an output for a fault indication.

It can be just as easy to indicate when a door is opened or the lighting is switched on.

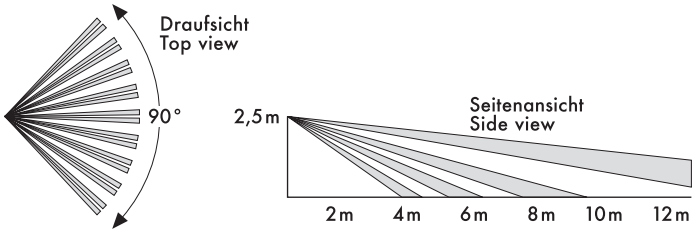
The respective procedures do only have to be linked to the alarm input.

In case there is no telephone connection available, this can be recreated with the telephone gateway IT-GSM. This combination can also monitor remote events or buildings.

A 12V DC voltage operates the units. When a rech. battery is used combined with a solar charger, not even a direct mains connection is re- quired.

Motion Detectors (PIR Sensors)

A classic IR motion detector, also called PIR sensor, reacts on moving heat sources within the detection range, e.g. a human body.
Due to the applied lens, this range is separated both in horizontal and vertical sections.



The picture shows a typical distribution of these sections. This can vary depending on the type of detector.

If someone crosses from one section to the other, an alarm is triggered. Thus, a PIR detector is most sensitive if the movement occurs horizontally to the section. Detectors with pulse counters can be set, so that one or more sections have to be crossed. This prevents false alarms caused by, e.g. night-time charge storage heaters or strong sunlight exposure.

Another method of application is the use of motion detectors in dual technology. These consists of two separate sensors which do have one common alarm output. The first one is the PIR sensor which is described above.
The second one applied is a microwave sensor. A moving object which changes the microwave field will activate the unit. People who wear a thermal suit to prevent heat dissipation can also be detected.

These methods can be combined. An alarm can be activated if either one sensor reacts or both.
Thus, a high reliability is achieved.

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MOUSE-01

Order No. 04.3160

Infrared motion detector, with dual technology (IR detection and microwave detection).

- Higher detection reliability and prevention of false alarms due to dual detection (infrared and 10GHz microwave technology)
- Anti-tampering switch
- Walk test
- Adjustable sensitivity of the microwave detection
- 3 different configurations can be selected with the detector
- Matching wall bracket SN-1 is available at option

SMILE-16

Order No. 04.3180

DIGITAL

Infrared motion detector, microprocessor-controlled.

- Digital technology
- Pulse counter for preventing false alarms
- Anti-tampering switch
- Walk test
- Operating range and response sensitivity can continuously be adjusted
- Matching wall bracket SN-1 is available at option

SN-1

Order No. 04.3190

Wall bracket, with inside cable duct, for mounting motion detectors MOUSE-01 and SMILE-16.

- Movable and tiltable
- Dimensions: 36x62x58mm
- Weight: 18g

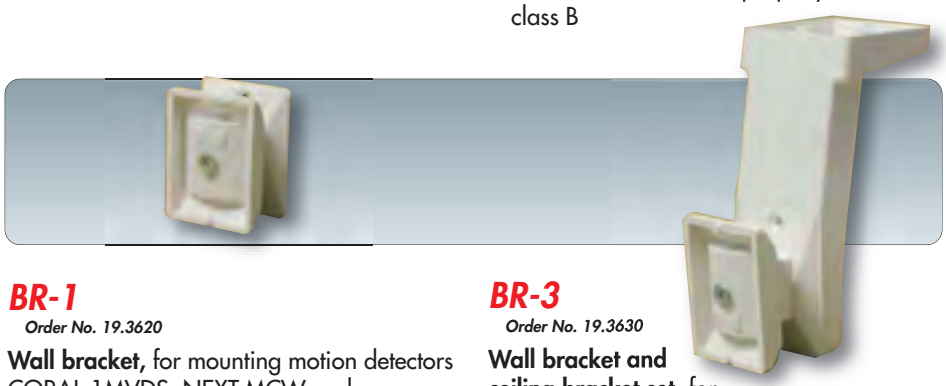
CORAL-1MVDS

VdS

Order No. 04.2510

Infrared motion detector

- Pulse counter for preventing false alarms
- Anti-tamper switch
- Solid terminal strip
- Preadjustment via DIP switches
- Hermetically sealed relay
- Matching brackets BR-1 and BR-3 are available at option
- VdS (German assn. of property insurers) class B



BR-1

Order No. 19.3620

Wall bracket, for mounting motion detectors CORAL-1MVDS, NEXT-MCW and NEXT-985MCW.

- Movable and tiltable
- Dimensions: 50x36x26mm
- Weight: 30g
- Supplied with screws and dowels

BR-3

Order No. 19.3630

Wall bracket and ceiling bracket set, for mounting motion detectors CORAL-1MVDS, NEXT-MCW and NEXT-985MCW.

- Consisting of BR-1 + 1 ceiling bracket
- Movable and tiltable
- Length of ceiling bracket: 110mm
- Total weight: 60g

IF-15

Order No. 04.3150

Infrared motion detector, for monitoring windows and doors (curtain detector).

- Adjustable sensitivity
- NC alarm contact
- Anti-tampering switch for protection against dismounting
- Power supply: 9-14.5V⎓/12mA
- Dimensions: 145x37x23mm

Model	MOUSE-01	SMILE-16	CORAL-1MVDS	IF-15
VdS (German assn. f. property insurers) no.	-	-	G 196608	-
Detection zone	14m	3-18m	12x12m	1-6m
Detection angle	90°	90°	90°	approx. 110° x 20°
Quiescent current	26mA	10mA	7mA	12mA
Power supply	9-15V⎓	9-15V⎓	9-16V⎓	9-14.5V⎓
Alarm switches	NC/0.1A/40V⎓	NC/0.1A/40V⎓	NC/0.1A/24V⎓	NC, 12V⎓, 19mA
Admiss. ambient temp.	5-40 °C	5-40 °C	-10 °C to +50 °C	5-40 °C
Dimensions	60x110x46mm	60x110x46mm	60x104x32mm	145x37x23mm
Weight	65g	65g	68g	65g

PIR-990

Order No. 04.0060

IR motion detector, for indoor mounting to walls, ceilings or corners.

- Silent relay with NO/NC alarm contact, can be changed
- Pet immunity function
- Anti-tamper switch

BR-990

NEW.

Order No. 04.0100

Wall and ceiling bracket, for mounting motion detector PIR-990.

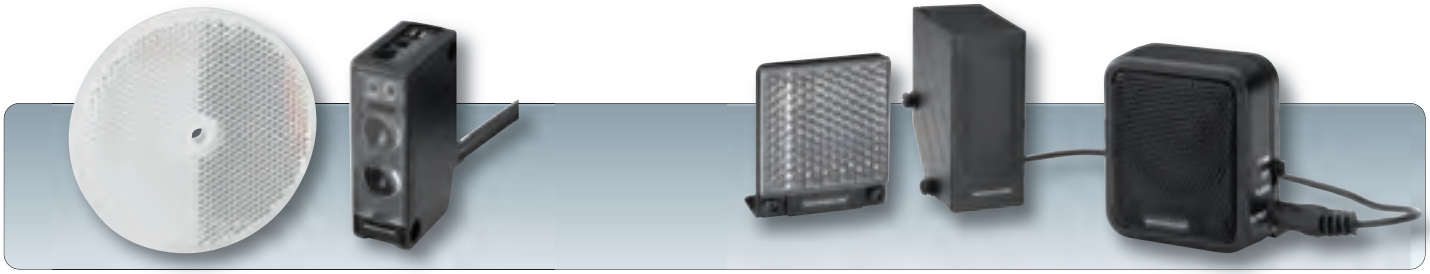
- Movable and tiltable, with snap-in grooving
- Spring mechanism for adjustments also after installation
- Dimensions: 56x63x54mm

VDS-2GBD/WS

VdS

Order No. 04.1330

Glass break sensor, with 4m connection cable, white. Moulded and compact. Signal latching in case of glass breakage. Power supply via the alarm centre. NO contact. VdS (German assn. of property insurers) approval number: G196614



IRS-100

IP66

Order No. 04.2940

Infrared reflection light barrier, with relay output and LED indication.

- Operating range: 0.2-14m
- Relay contact rating: 48V~/3A, 30V⎓/3A
- 2m connection cable, 5 cores, 22AWG
- Weatherproof and protected against strong jets of water (IP66)
- Power supply: 12-48V⎓/12-48V~/65mA
- Admissible ambient temperature: -20 °C to +55 °C
- 20x63x39mm

IRS-200

Order No. 04.2950

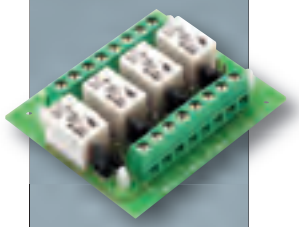
Infrared reflection light barrier, with speaker, control output, and LED indication. Ideally suited for application as a door chime and for the surveillance of entrance areas.

- Sound of chime or siren via speaker
- Duration of alarm and volume can be adjusted
- Operating range: up to 7m
- Open collector control output, NPN, contact rating: 9-12V⎓/max. 100mA
- Power supply: 9V⎓/max. 100mA via supplied plug-in PSU 230V~/50Hz/5VA
- Ready for operation without cable installation, ready for connection

Model	PIR-990	VDS-2GBD/WS
VdS (German assn. f. property insurers) no.	-	G196614
Detection zone	15m	1.5m max.
Detection angle	100°	
Quiescent current	15mA	< 10µA
Power supply	9-16V⎓/20mA	5 to 15V⎓
Alarm switches	NO/NC, 24V⎓/0.5A	approx. 3.7mA/6V⎓
Admiss. ambient temp.	-10 °C to +50 °C	-25 °C to +70 °C
Dimensions	70x110x48mm	21x21x10mm
Weight	82g	66g

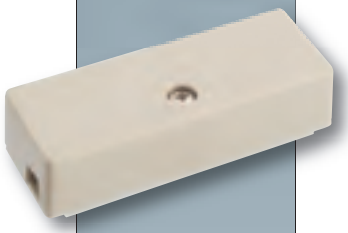
SC-35
Order No. 04.3170

12V relay module, for extending, e.g. alarm centres with semiconductor outputs.
- 4 independent relays
- Outputs alternatively NO/NC



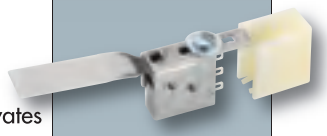
SS-15
Order No. 04.0730

Vibration sensor, adjustable, with demounting protection, current is fed in quiescent position, with screw terminals, NC or NO, depending on the adjustment.



SAS-5VDS
Order No. 04.1530

Electric lock release, for mounting into standard door locks.
- When locking the door, the bolt activates the contact (NO/NC, 30V⎓/1.5A)
- Micro switch IP40
- Contact material fine silver
- VdS (German assn. of property insurers) approval number: G193028



SAS-6VDS
Order No. 04.1540

Rolling gate magnetic switch, diecast, NO contact (20V⎓/0.5A/10W), closed when magnet distance < 20mm, anti-tamper loop.
- 1.8m cable, 4 cores
- Contact: 45x15x180mm, magnet: 104x30x47mm
- VdS (German assn. of property insurers) approval number: G191589

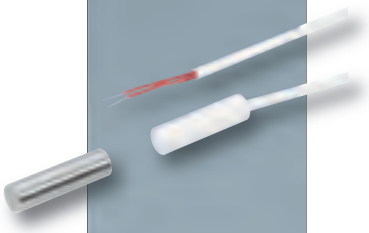
SAS-4/BN
Order No. 04.0700

SAS-4/WS
Order No. 04.0710

Reed contacts
- Brown (BN) or white (WS)
- Contact (24V⎓/0.5A) closed when object closed
- Contact: 50x12x14mm, magnet: 50x14.5x10mm

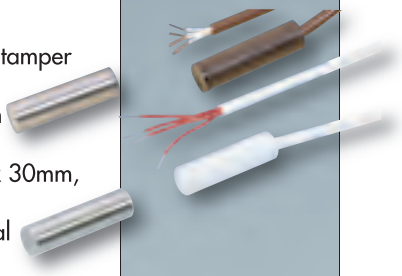
FF-50/WS
Order No. 04.0320

Reed contact, white
- Contact (24V⎓/0.5A/12W) closed when magnet distance < 20mm
- 2m cable, 2 cores
- Magnet: ⌀ 8mm x 30mm



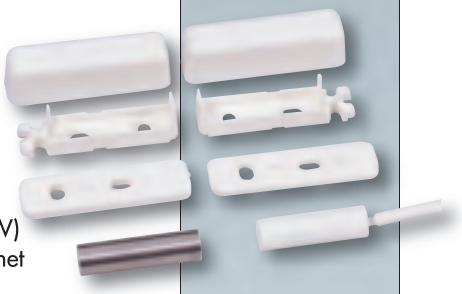
VDS-34FF/WS
Order No. 04.0810

Reed contact
Recessed installation, anti-tamper loop, contact (24V⎓/0.5A) closed when object closed, 4m cable, 4 cores, magnet: ⌀ 8mm x 30mm, VdS (German assn. of property insurers) approval number: G199538.



FF-50S/WS
Order No. 04.0340

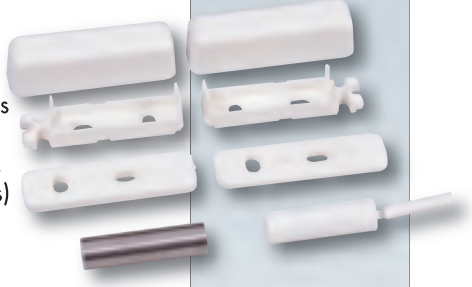
Reed contact
- Optionally flush mounting or surface mounting with supplied housings
- Anti-tampering loop, contact (24V⎓/0.5A/12W) closed when magnet distance < 20mm
- 2m cable, 2 cores
- Housing: 43x12x12mm



VDS-34SFF/WS
Order No. 04.2110

Reed contact
- Built-in contact with mounting connectors
- NC contact, 24V⎓/0.5A, 10W
- 4m cable, 4 cores
- ⌀ 8mm x 30mm

VdS (German assn. of property insurers) approval number: G199538, class B



APS-1

Order No. 04.1110

Alarm push-button

- Surface mounting or flush mounting (supplied with frame for flush mounting junction box ø 80mm)
- Button with fluorescent surrounding
- Supplied with 1 additional security glass for the button
- 85x85x53mm

DAC-199

Order No. 04.1180

DAC-299

Order No. 04.1190

Code keypads, for the control of alarm centres.

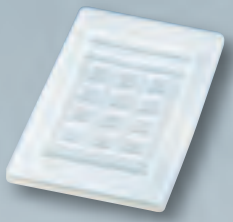
- Anti-tamper switch
- Code number of 3 to 8 digits
- Adjustable operating time
- DAC-199: surface mount
- DAC-299: flush mount, mounting cutout: 74x98x28mm

Model	DAC-199	DAC-299
Power supply	8-13.8V⎓	8-13.8V⎓
Current consumption	8mA/4.5mA	8mA/4.5mA
Relay contact	1 x UM (NC/NO), 1A max.	1 x UM (NC/NO), 1A max.
Anti-tampering switch	NC contact	NC contact
Dimensions	76x104x37mm	83x134x42mm

DAC-299CO

Order No. 04.0230

Keypad cover, perfect weather protection for code keypad DAC-299; made of transparent, rubber-like material.



NSA-80

Order No. 04.1080

NSA-90

Order No. 04.1060

Alarm key switches

- Mat aluminium front panel, fiber glass reinforced polyester rear side
- Anti-tamper switch
- Version:
  - NSA-80 = surface mount, w/o cylinder lock
  - NSA-90 = surface mount, with cylinder lock/3 keys
- Dimensions: 88x118x50mm

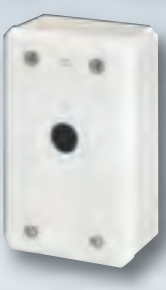
KSS-10

Order No. 04.2570

Alarm key switch, for surface mounting.

- Zinc diecast housing
- 2 LED indicators
- Integrated acknowledgement buzzer
- Second switching contact NO
- Dimensions: 90x145x55mm
- Supplied with mounting auxiliaries

Supplied without half-profile cylinder. Each standard half-profile cylinder with a length of 30mm and an adjustable cylinder lock can be fitted into the alarm key switch.



DB-247/WS

Order No. 33.0160

Junction box

- Small version, empty
- 44x30x15mm

DB-264/WS

Order No. 33.3880

Junction box

- 1 x 12 poles, PCB
- Anti-tamper switch
- 40x113x20mm

Cable Protecting Sleeves

Length: 300mm, inside diameter: 6mm or 7mm, for protecting alarm wires at doors and windows, etc.
Equipped with 2 mounting flanges, available in different versions.

DB-55

Order No. 04.2560

Flush-mount distributor, with 19 double-faced soldering tags. White plastic cover, outside diameter: 85mm. Suitable for wall sockets with ø 55mm.

Model	Order No.	Hose	Inside ø
MPT-30/BN	*04.0950*	brown	ø 7mm
MPT-30/WS	*04.0960*	white	ø 7mm
MPT-30M	*04.0590*	chromium-plated	ø 6mm

BAL-10

Order No. 18.1500

IP54

Strobe light

- Xenon strobe lamp, very high luminous intensity
- Plastic housing according to IP54
- 12V

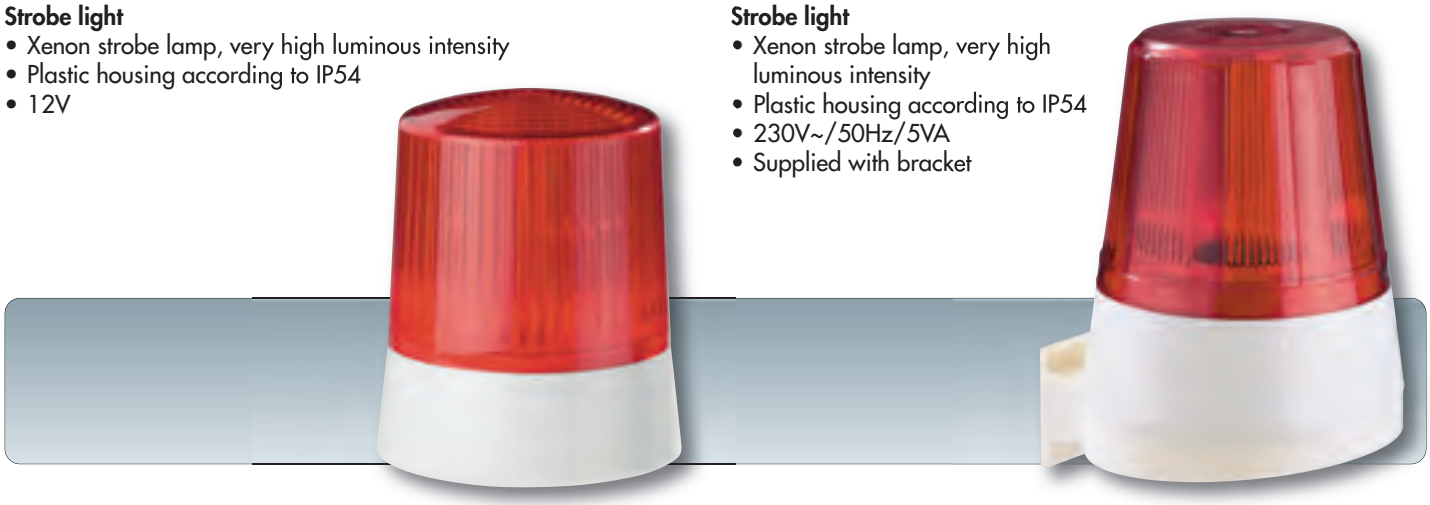
BAL-230

Order No. 04.1550

IP54

Strobe light

- Xenon strobe lamp, very high luminous intensity
- Plastic housing according to IP54
- 230V~/50Hz/5VA
- Supplied with bracket



Model	BAL-10	BAL-230
Protective class	IP54	IP54 (hor. mounting)
Flash energy	typ. 2Ws	typ. 2Ws
Admiss. ambient temp.	-20 °C to +50 °C	-20 °C to +50 °C
Power supply	12V⎓/200mA	230V~/50Hz/5VA
Dimensions	ø 98 x 115mm	ø 123x143mm
Weight	176g	250g

SAG-10

Order No. 18.1410

IP 54

Alarm unit, for 12V DC voltage supply, consisting of an aluminium outdoor housing with anti-tamper switch, tear-off loop and built-in electronic siren as well as rigidly installed strobe light. Matching all alarm centres.

SAG-10EH

Order No. 18.1420

IP 54

Alarm unit dummy

- Empty housing of alarm unit SAG-10
- Weatherproof aluminium housing

Model	SAG-10
SPL	approx. 112dB
Current consumption	12V⎓/300mA (siren)
	12V⎓/150mA (flash)
Dimensions	210x360x170mm
Flash energy	5Ws

SAG-22

Order No. 04.1870

IP 54

Alarm unit, for 12V DC voltage supply.
Impact-proof plastic housing. Siren activation PCB and flashlight PCB are humidity-proof due to special coating (IP54). Cover contact and tear-off wall cable. Mounted and wired ready for operation. Supplied with screws and dowels. Connections via screw terminal strip. Admissible ambient temperature: -20°C to +70°C.

Model	SAG-22
SPL	120dB
Current consumption	12V⎓/700mA
Dimensions	190x270x85mm
Flash energy	8Ws

SAG-42

Order No. 04.3090

IP 34

Alarm unit, visible and audible alarm device in a compact outdoor housing, incl. piezo siren, electronic flash and red spherical cap. Impact-proof and UV-resistant polycarbonate housing. Suitable for indoor and outdoor applications. Operating voltage: 12V.

Model	SAG-42
SPL	> 100dB
Current consumption	12V⎓/370mA (siren)
	12V⎓/200mA (flash)
Dimensions	110x260x65mm
Flash energy	2.5Ws

SR-138X

Order No. 04.3200

IP 54 DIGITAL

Alarm unit, microprocessor-controlled, consisting of an ABS plastic outdoor housing with metal inner case, anti-foam system anti-tamper switch, built-in electronic siren, and a rigidly installed Xenon strobe light. Power supply externally via 12V DC voltage or via optional battery 12V⎓/2Ah (not supplied). Automatic operational test. Status indication via LED (integrated in the strobe light). 2-16 different chimes can be activated during operation. Matching all alarm systems.

Please order matching rechargeable lead battery NPA-12/2 together with this unit.

Model	SR-138X
SPL	110dB
Current consumption	13.8V⎓/1.2A externally,
	12V⎓/2Ah battery (not suppl.)
Dimensions	240x280x100mm
Flash energy	10Ws

AS-362

Order No. 04.3140

Electronic piezo alarm siren

- Humidity-proof due to water-repellent lamellas
- Low current consumption due to piezo technology
- Flat version
- 2 different chimes
- Anti-tamper switch

AS-342

Order No. 04.1710

Electronic alarm siren, dynamic.

- Humidity-proof due to water-repellent segments
- 2 different chimes

AS-332

Order No. 04.2790

AS-332S

Order No. 04.2770

Electronic piezo alarm sirens

Low current consumption due to piezo technology

AS-512

Order No. 04.1730

Electronic alarm siren, dynamic.

AS-612

Order No. 04.0070

Electronic alarm siren, dynamic.

AP-4

Order No. 04.0020

Piezo alarm buzzer

- Sound pressure: 120dB (30cm distance)
- 2,100Hz dual sound
- Power supply: 12V⎓/200mA
- Voltage range: 6-15V⎓
- 106x106x34mm
- Admissible ambient temperature: -20 °C to +60 °C

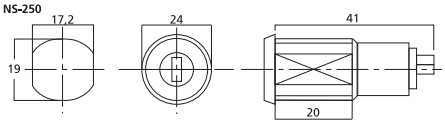
Model	AS-362	AS-342	AS-332	AS-332S	AS-512	AS-612
Housing	plastic	plastic	plastic	plastic	plastic	plastic, weatherproof
SPL	105dB/1m	96dB	100dB/1m	100dB/1m	102dB	110dB
Alarm signal	continuous or wailing sound	continuous or wailing sound	siren (1,500-3,500Hz)	continuous sound (3,000Hz)	wailing sound	penetrating
Power supply	6-14V⎓/ max. 120mA	9-12V⎓/0.7A	12V⎓/150mA, voltage range: 6-13V⎓	12V⎓/150mA, voltage range: 6-13V⎓	6-12V⎓/0.7A	6-13.8V⎓/ max. 1A
Dimensions	110x110x32mm	110x110x57mm	45x41x58mm	45x41x58mm	ø 90mm x 105mm	ø 136mm x 140mm
Weight	135g	400g	60g	60g	400g	550g

NS-250

Order No. 01.1290

Key switch

- Switching contact, 1 x ON/ON, 150V~/3A
- Mounting hole: ø 19mm

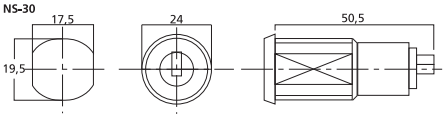


NS-30

Order No. 01.1300

Key switch

- Switching contact 1 x ON, 150V~/3A
- Mounting hole: ø 19.5mm



NRK-325

Order No. 01.1720

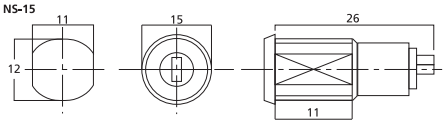
Blank key, for key switch NS-30 and NS-250.

NS-15

Order No. 01.1280

Key switch

- Switching contact 1 x ON, 120V~/2A
- Mounting hole: ø 12mm

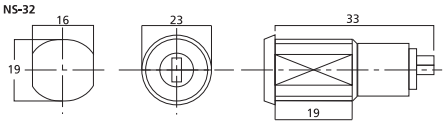


NS-32

Order No. 01.2910

Momentary key switch

- Contact for momentary action 1 x ON, 150V~/3A
- Mounting hole: ø 19mm

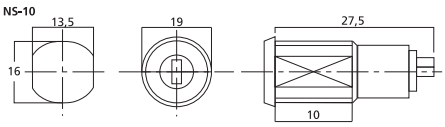


NS-10

Order No. 01.1270

Key switch

- Switching contact 1 x ON, 120V~/1A
- Mounting hole: ø 15.5mm



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All products of MONACOR INTERNATIONAL are tested continuously to ensure a constant quality level and to maintain the high quality standards. All products which are subject to the CE guidelines as well as the electric and electronic subassemblies which are subject to the directive for motor vehicles, are tested to the respective standards and carry the CE mark. In consequence, these products can be sold in all EC countries without further tests or approvals.

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- If the units are interfered with, the CE approval will no longer apply.
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- The products do not correspond to the medical products directive 93/42EG.
- If the products are to be put out of operation definitively, they must be taken to a local recycling plant for disposal which is not harmful to the environment.

Technical Information

- Before first use of the products please read the instruction manual carefully!
- The products correspond to the directive for electromagnetic compatibility 2004/108/EG and partly to the low voltage directive 2006/95/EG and their amendments.
- When operating with voltages of over 42 V, please always observe the respective safety measures.
- Before opening any products operated with 230 V mains voltage, disconnect the products from the supply voltage!
- Make sure that the supply voltage is disconnected before working on components and modules. Existing capacitors must be discharged.
- Mains connecting cables and test cables have to be examined for damage regularly. Never pull on the cable to disconnect the plug from the socket.
- Mains connecting cables and mains fuses must only be replaced by skilled personnel.
- Unless otherwise stated:
  – protect the products from humidity and heat,
  – always observe the admissible ambient temperature of 0–40 °C.
- Do not use a very high volume level when using headphones. Permanent high volume may damage your hearing!
- A soldering process which is too long and too hot may cause damage to the corresponding products. Choose a soldering temperature that is suitable for the material used. No liability can be assumed for damage to the product or consequential damage caused by improper handling.
- The plugs, jacks, switches, rotary switches, and potentiometers shown in this catalogue are only suitable for connection to safety extra low voltage (SELV) or signal voltage unless the item is designed for a higher voltage (see text or table).
- If the fixing nuts of chassis mount jacks or chassis plugs are tightened too much, this may cause damage to the whole component. In case of improper handling no liability can be assumed for this or consequential damage.
- The heat must be eliminated by air circulation. Therefore do not cover ventilation slots with anything. Do not put or drop anything through the ventilation slots. Otherwise there will be danger of an electric shock.
- Only use a dry, soft cloth for cleaning the products. Chemicals must not be used in any case.

Information on the German Product Liability Act

According to the law dated December 15, 1989 governing product liability which was last amended by the law dated July 19, 2002, manufacturers, importers, and dealers are obliged to compensate for damage caused by a faulty product under certain prerequisites.

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The products listed in this catalogue may only be used for the stated purpose. If there are any doubts as to the purpose of the goods, questions must be clarified with an authorized expert or with the service department of MONACOR INTERNATIONAL.

The following EN standards and VDE (Verband Deutscher Elektrotechniker = Association of German Electrical Engineers) regulations must be observed:

Electromagnetic compatibility:

EN300422, EN301489, EN55013, EN55020,
EN61000-3-2, EN61000-3-3, EN61000-6-1, EN61000-6-3

Low voltage directive:

DINVDE0100, DINVDE0532,
EN60065, EN60742, EN60570, EN60335,
EN60598, EN60950, EN61010

Motor vehicles directive:

directive 72/245EWG, changed by the directive 2004/104/EG

In Germany, the above-mentioned regulations can be obtained from:

VDE-Verlag GmbH
Bismarckstraße 33
10625 Berlin • Germany
Phone: +49-(0)30-348001-0
Fax: +49-(0)30-3417093

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Merianstraße 29
63069 Offenbach • Germany
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Fax: +49-(0)69-84000655

Notes concerning approval of wireless systems

The systems have been examined by a notified body and have been approved in the EU according to the R+TTE directive. However, it is necessary to apply for a frequency assignment at the national authorities. In Germany, the frequency assignment has to be applied for at the corresponding branch of the Federal Network Agency (BNetzA, Germany)

A license is required for these systems!

The wireless microphone systems in the frequency ranges from 790 MHz to 814 MHz (for Germany, please refer to ruling 91/2005), 863 MHz to 865 MHz are generally approved and are licence-free!

The declaration of conformity can be found on our website: www.imgstageline.de

The forms for the frequency assignment as well as the ruling 91/2005 can be found on the website of the Federal Network Agency (BNetzA): www.bundesnetzagentur.de

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Please observe the notes in the operating instructions!

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